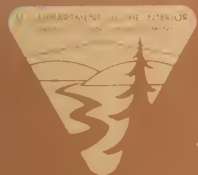


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ARCHAEOLOGY OF OREGON



C. Melvin Aikens

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Archaeology of Oregon

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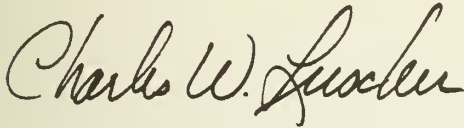


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Foreword

The Bureau of Land Management Oregon State Office is proud to present "Archaeology of Oregon" by Dr. C. Melvin Aikens. This volume presents a synthesis of the information that is available concerning the prehistory of Oregon. Dr. Aikens has analyzed the archaeological and anthropological data; in addition, he has added the insights and conclusions that have come to him through twenty years of concentrated study of the subject area. The Bureau of Land Management publishes this study in recognition of its responsibility to make the information gained through its Cultural Resources Management Program available to scholars and to the general public.



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Preface

The Great Basin, the Columbia Plateau, the Lower Columbia and Coast, the Willamette Valley, the Southwestern Mountains: these Oregon environments have been explored and their resources used by man for at least the last 12,000 years. The evidence of that use has been painstakingly collected by archaeologists and historians, and their descriptions of past life styles based upon that evidence have been published in hundreds of different articles, monographs and books. Anyone wishing to learn about the prehistory and/or history of any particular area within the State can find at least some of the relevant information without the expenditure of a very great amount of time and energy.

Gordon B. Dobbs published a general history of Oregon in 1977; a general synthesis of the prehistory of Oregon has not, until now, been published. The present work was written to provide the reader a broad vista of the various major cultures of Oregon that can be reconstructed from the remnants that have survived of those life styles. Readers who are sufficiently intrigued can fill in the details for any area from the more specific publications listed in the bibliography.

This book is one product of the Cultural Resources Management program of the Oregon State Office of the Bureau of Land Management. Cultural Resource Management programs were started primarily as a result of the National Historic Preservation Act and Executive Order 11593. By 1975 archaeologists were working in most Federal land managing agency offices. An obvious first step in program development was the compilation of all of the archaeological data available. The resulting literature surveys were done in a more or less standardized format and came to be known as Cultural Resources Overviews. The overviews were in most cases done by contract and so involved the efforts of many different individuals. By 1981 most of the overviews for Oregon were completed and essentially all of the archaeological data for Federally managed lands in Oregon was available in twenty documents. These are open to the public as research or reference sources; however, only a few copies were made and the format and style reduce their appeal to the general public. This synthesis of the material covered in these twenty overviews was written to provide readers who are interested with an introduction to all of those people who found their way into Oregon prior to Lewis and Clark.

A major goal is to document the differing adaptations that groups have made to the various environments. In order to accomplish this goal each

chapter is organized utilizing the same themes. Thus attention is drawn, for example, to the reliance on salmon in the Columbia gorge versus the use of roots, seeds, and small game in the northern Great Basin. Such differences must not obscure, however, the fact that there is a fundamental similarity in the broad utilization of available resources and in the resulting annual movement from lowland to upland and return. It is useful to observe that the same broad organizing principle is found to some degree in all non-horticultural groups to the extent that they are free from constraint. Inferences are also drawn, whenever possible, about the changes in life styles that occurred through time. The lack of major, clearly defined changes within narrow time spans is a hallmark of Great Basin and Plateau cultures and represents one of only a few cases where both culture and environment have remained stable over a period of several thousand years. Such stability in culture has and will continue to evoke considerable scientific interest.

J. T. Witherspoon
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Acknowledgments

It gives me great pleasure to thank first of all Y. T. (Jack) Witherspoon of the Bureau of Land Management for the impetus and sustained support he contributed to the production of this book, from its inception through to final publication. Phil Carroll and Don Smurthwaite, also of the BLM, made all but a few of the original photographs; new photographs for the second edition were made by Gary Haase, BLM, who was responsible for graphic design and art direction; Shirley Wescott, BLM, carried out the word processing and typesetting; and Judy Briney, Eva Williams, and Cathlin O'Riley, BLM, drafted the illustrations and maps. William G. Loy of the University of Oregon generously permitted and collaborated in the adaptation of figures 1.3, 1.4, 2.1, 3.1, 4.1, 5.1, and 6.1 from maps originally published in the ATLAS OF OREGON. Martha Frankel and Pamela Endzweig assisted in getting together for photography the bulk of the archaeological specimens illustrated, which come from the collections of the Oregon State Museum of Anthropology on the campus of the University of Oregon. Don E. Dumond, OSMA director, gave permission to photograph the specimens, and made available the facilities of the museum for the project. Richard E. Ross and David R. Brauner of Oregon State University offered valuable consultation on the cultures of the Oregon Coast and Southwestern Mountains, and Brauner made available for photography the specimens depicted in figures 6.2, 6.3, 6.4, 6.5, and 6.6. Richard M. Pettigrew, OSMA, and Michael D. Southard, BLM, read the manuscript in draft and made much appreciated suggestions for improvements. Southard also gave very important and timely assistance in the large task of preparing the illustrations. Thelma Aman, Margaret Olson, and Christine Kirkpatrick, University of Oregon, all contributed to the typing of the manuscript. The Bureau of Land Management employed me on special assignment during the summer of 1981 when this project was initiated, and as always the University of Oregon has provided support, facilities, and a congenial setting in which to write.



C. Melvin Aikens

Archaeology of Oregon

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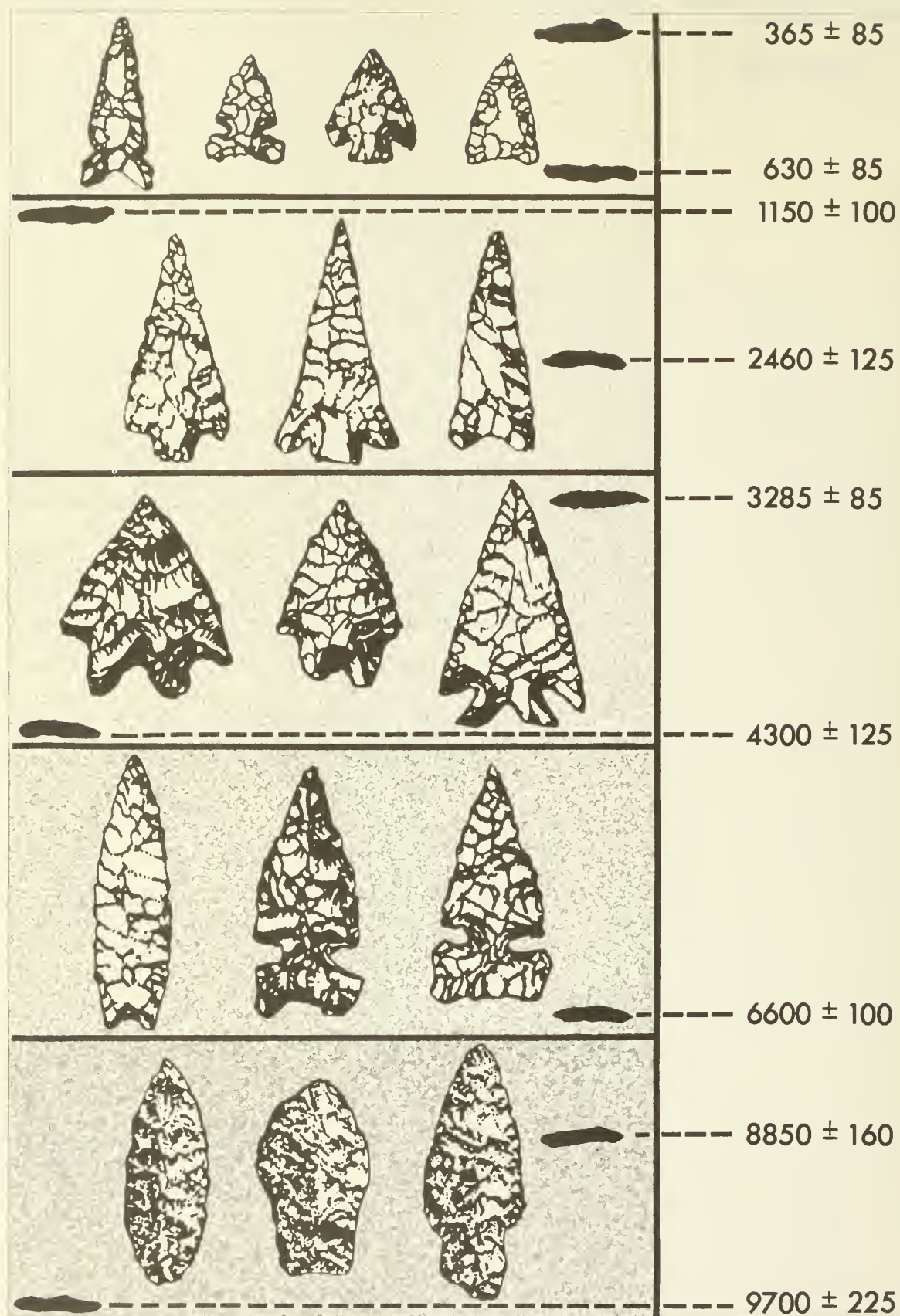


Fig. 1.1 Hypothetical stratified site with projectile points and ^{14}C dated firehearths.

Introduction

Archaeology reconstructs the human past by studying the objects people have made, and by plotting the occurrence of specific artifact types across space and through time. We know from everyday experience that members of any society make things according to definite patterns, which reflect their commonly shared ideas about what is efficient, or attractive, or stylish. Ideas about what constitutes proper form (or proper behavior) vary from group to group, and these ideas change over time. Traditional clothing styles, for example, differ from country to country, and fashions come and go. Thus archaeology, through the comparative study of ancient artifacts from a variety of different places, can map out the regions or culture areas once occupied by prehistoric peoples of different traditions. By tracking changes over time in the artifacts made within such regions, it can trace the course of cultural change over hundreds or thousands of years.

Many techniques are available to the archaeologist for determining the sequence of cultural developments over time, and for estimating the age of cultural events. But only three—stratigraphic excavation, radiocarbon dating, and typological cross-dating—have so far been of major importance to the study of Oregon prehistory. The first of these techniques, stratigraphic excavation, is the most basic. It has been in use as long as there has been a science of archaeology. Radiocarbon dating was developed during the early 1950's, and has since become the principal means for establishing the

actual age of archaeological sites. Typological cross-dating, like stratigraphic excavation, is a long-established and basic technique, still extremely important in archaeological research.

Stratigraphic excavation relies on the elementary fact that in a series of earth layers or strata laid down on a given spot over a period of time, the sequential order of the strata from bottom to top of the deposit shows the relative age of any objects contained in the various layers. Much of the legendary care devoted to archaeological excavation is spent on the precise determination of stratigraphic sequence, because the recovery of artifact assemblages from successive time periods is essential to the analysis of cultural change. Even without other dating techniques, application of this method allows the archaeologist to define cultural periods and outline patterns of cultural change or cultural stability over time. By itself, however, stratigraphic excavation cannot establish the actual age of archaeological finds. Though it can place artifact assemblages in proper time sequence relative to one another, the application of other techniques is necessary to provide age calculations in terms of actual years. The most important and widely used of such techniques is radiocarbon dating.

Radiocarbon dating begins from the fact that Carbon-14 (hereafter abbreviated ^{14}C), an unstable radioactive form of carbon, is everpresent in the earth's atmosphere, and is absorbed into the tissues of all living organisms as part of the life

process. The ^{14}C , being inherently unstable, is subject to radioactive decay over time; release of a beta particle converts it to the stable element Nitrogen-14 (^{14}N). This decay process goes on constantly, but in living organisms normal biological processes continue to take in fresh ^{14}C from the atmosphere, so that the amount of ^{14}C present in a living organism always remains at the same level as it occurs in the atmosphere. When an organism dies, however, it ceases to take in fresh ^{14}C . Since ^{14}C is constantly undergoing beta-decay, the amount of radiocarbon contained in the dead organism decreases steadily.

The rate at which ^{14}C decays into ^{14}N is expressed as its **half-life**, which has been determined in the experimental laboratory to be 5730 years. Thus, after 5730 years, a piece of dead organic matter will contain half as much ^{14}C as it did when it was living. This amount can be measured in the laboratory through the use of a geiger counter. The amount of ^{14}C continually decreases over time, until after about 40,000 years or so the quantity left is too small to be measured accurately. Thus, the practical limit of radiocarbon dating is about 40,000 years, although with special equipment, special techniques, and favorable circumstances, it is possible to push this limit to approximately 70,000 years in some cases.

The basic reliability of the method has been established by thousands of ^{14}C dates from all over the world. The procedure by which actual ages are calculated from the laboratory measurements provides an estimate of the probable accuracy of the method, expressed as a **standard deviation**. Briefly, this means that for a date expressed, for example, as 13,200 years \pm (plus or minus) 720 years before present (hereafter abbreviated BP), the odds are 2 to 1 that the actual age lies somewhere within 720 years on either side of 13,200 BP. If the standard deviation is doubled, in this example to 1440 years, the statistical odds become 19 to 1 that the true date lies within 1440 years of 13,200 BP (that is, between 11,760 and 14,640 BP). The method thus is not exact, but it does provide reliable age estimates within a measureable margin of error. Most standard deviations, incidentally, are much smaller than the 720 years of the example given here; under favorable circumstances, dates with a standard deviation of less than 100 years can be achieved. For a fuller account of the radiocarbon dating method, including ramifications and complications not described here, see Michels (1973).

Radiocarbon dating has brought about a major breakthrough in our understanding of prehistoric cultural chronology. Artifacts of wood, bone, shell, or plant fiber—anything organic—can be dated by the ^{14}C technique. Stone and other inorganic

artifacts can be assigned a date if they are found closely associated with organic remains, such as charcoal from a firehearth, by dating the organic material. Stone tools or other inorganic artifacts found unassociated with organic matter cannot be dated by this process however, and because it is very common to find artifacts, either buried or lying on the surface, which are not associated with datable material, another avenue of approach is required for such specimens, as discussed below.

Typological cross-dating is a comparative technique, usually applied in conjunction with both stratigraphic sequencing and radiocarbon dating. Carefully shaped artifacts such as projectile points, or intricately crafted materials such as basketry, are often of highly distinctive types, which were made only in certain areas over certain spans of time. When distinctive or diagnostic types are found in stratigraphic sequence at an excavated archaeological site, their time of occurrence relative to one another is established; thereafter it is possible to infer, when the same diagnostic types are found elsewhere on unstratified surface sites, the relative time of occupation of those sites. When radiocarbon determinations can be obtained for stratified sites which contain a number of diagnostic types, the actual periods of time over which such types were made can be directly dated. Subsequently, when diagnostic artifacts are found on other sites, the archaeologist can infer the approximate time of occupation of such sites based on the typology of their artifacts alone (Fig. 1.1).

Archaeological interpretation of ancient objects and reconstruction of extinct cultures depends heavily on analogies drawn from living societies. The archaeological sites which occur all over the continent record the prehistoric past of Native Americans who have lived here since time immemorial. The traditions of the people encountered by the European invaders have deep roots, and many of the tools and customs current in historic times may be traced far into the past. Ancient arrow points, knives, scrapers, and drills of flaked stone, as well as more esoteric objects such as antler digging stick handles, shaft-straightening wrenches made of mountain sheep horn, fish traps, and harpoons, can be identified because their counterparts were still made and used by Native Americans in recent times. There were, of course, also objects made in the past which have no modern counterparts. These add elements of puzzlement or ambiguity to the interpretive process, but in fact, most of the artifacts commonly found can be identified as to probable function with a good deal of assurance.

American Indian cultures were closely adapted to the natural landscape in which they existed (Aikens 1983a; Aikens et al. 1980). In western North

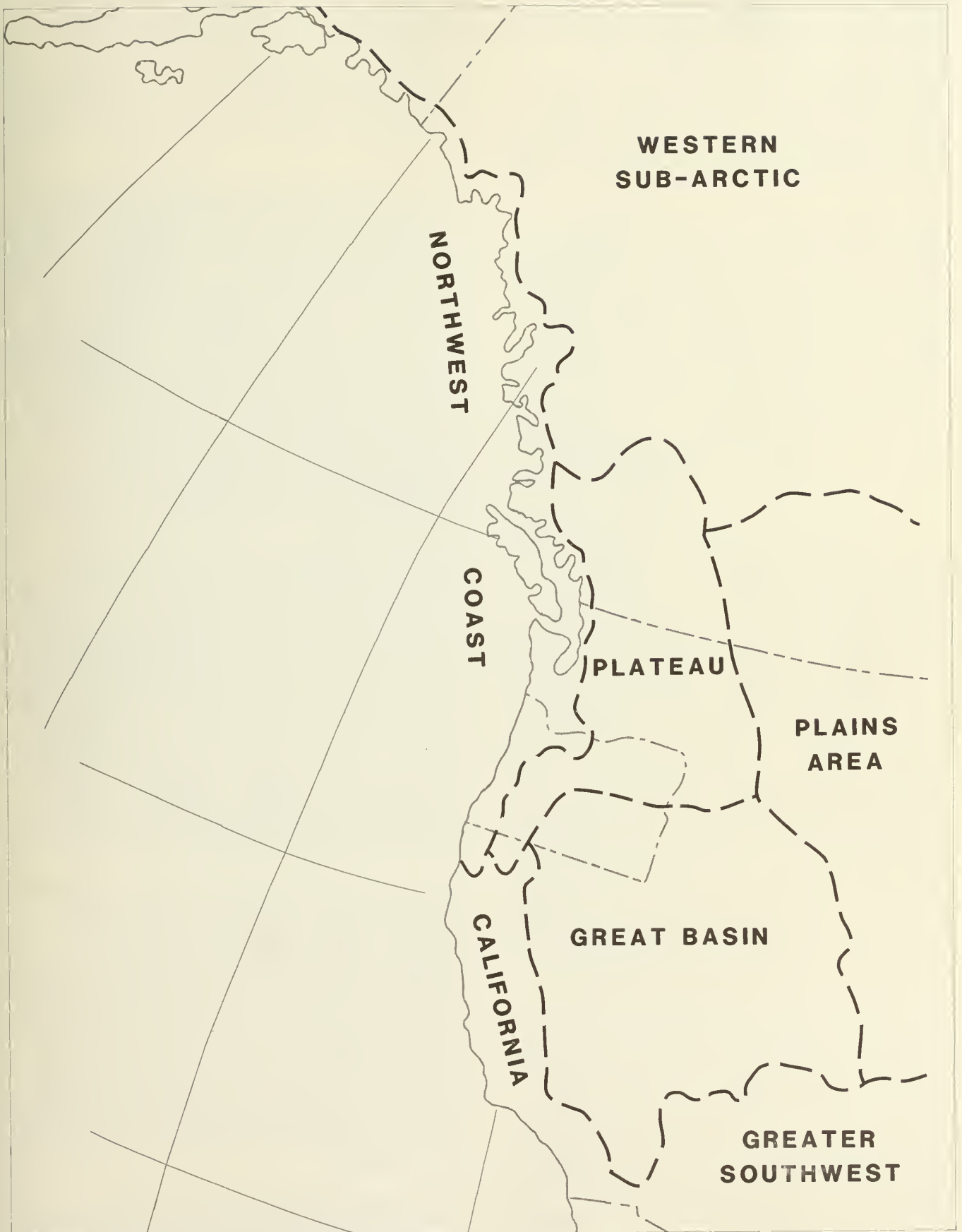


Fig. 1.2 Culture areas of western North America.

America, the most important cultural and natural areas were the Northwest Coast, from the Gulf of Alaska to about Cape Mendocino in northern California; the Plateau, extending from the Cascades to the Rockies, and north from the Columbia River to well beyond the international border with Canada; the Great Basin, stretching from east-central Oregon southward to the Colorado River; and California, defined approximately by the state's modern political borders (Fig. 1.2).

All these cultural and natural areas overlap within the present boundaries of the state of Oregon, though the interior Californian area is only barely represented. Great Basin and Plateau culture are well-attested by Oregon data; an account of the ancient cultures from the northern and eastern parts of the state will thus serve as an introduction to the general features of prehistoric Native American lifeways as they existed over much of the intermontane west. Northwest Coast culture reached its highest level of intensity far to the north, in British Columbia, but native Oregonians of the Columbia River estuary and Oregon coast pursued a similar, if less elaborated, way of life.

A map of Oregon Indian distribution in 1850 shows the number and diversity of the local groups occupying the land (Fig. 1.3). Thirteen different families of languages are represented, with the greatest amount of linguistic diversity occurring west of the Cascades. Nine of these families belong to the great Penutian macro-phylum of languages which has representatives in Oregon and California, as well as far to the south, in Mexico and Central America. The Penutian languages dominate the western and northern parts of the state. In east and south-central Oregon, the Northern Paiute language, representative of the Aztec-Tanoan phylum, was spoken over a vast area. Aztec-Tanoan languages have an extremely broad distribution in the west, extending from eastern Oregon to central Mexico. A section of the northwestern coast of Oregon was occupied by speakers of the Tillamook and Siletz languages, which belong to the Salishan family, widespread further north in Washington and British Columbia. Groups speaking languages of the Athabaskan family occupied a small area in extreme northwestern Oregon, and another in southwestern Oregon, extending inland from the coast along the Rogue River. The main body of Athabaskan-speaking peoples lives far to the north, in western Canada. Finally, the Shasta, a mostly Californian people whose range extends a short distance into southwestern Oregon, speak a language belonging to the Hokan linguistic phylum. They thus represent a group of tongues spoken widely in California and Mexico, and as far to the south as Central America. These linguistic distributions place the native languages of Oregon in continental perspective.

The fact that related tongues were spoken very widely over the western half of North America indicates a long and complex history of human migrations and dispersals, in which aboriginal Oregonians participated. The temporal scale implied is as vast as the spatial one, with a time depth on the order of 10,000 years suggested by the linguistic evidence.

The language map also has important implications for more localized aspects of Oregon prehistory. The detailed similarities observable in vocabulary, phonology, and syntax among the various Penutian tongues of northern and western Oregon show that all are derivatives of a common language, once spoken by a single ancestral speech community. Long ago this speech community became spread over a wide area, and through normal processes of linguistic drift gradually broke up into a number of daughter languages. The fact that the Oregon Penutian speech community split up in this way, into separate languages with the daughter languages largely retaining a contiguous distribution, implies a long period of stable residence, on the order of thousands of years, by the ancestors of the historic Penutians.

The Northern Paiute language of southeastern Oregon, by contrast, though it is spread over a vast area, shows little internal variation. It is in fact, a single speech, intelligible to people over hundreds of miles, whereas each of the Penutian languages is sufficiently different from its sister tongues as to be unintelligible to people of neighboring groups a few tens of miles away. This state of affairs implies that Northern Paiute speakers probably have not been in Oregon for nearly as long as have the Penutian speakers, though it also must reflect to some degree the highly nomadic life-way of the Paiute, whose continual movement and social interaction over long distances would have retarded the process of linguistic divergence.

The Salishan and Athabaskan-speakers of western Oregon represent offshoots of more northerly groups, centered in western Washington and Canada. They too, like the Paiute, probably took up residence after the Penutian-speakers were already well-established. Finally, the Hokan language of the Shasta has continued down from a very early time, before the arrival of the Penutian-speakers, when Hokan languages may have covered much of western North America. The scattered and spotty distribution of Hokan languages over the western half of the continent, as well as the extreme divergence between them, implies that they are of great antiquity.

Comparison of the linguistic (Fig. 1.3) and topographic maps (Fig. 1.4) of Oregon demonstrates a striking correspondence of certain cultural groups



Numbered Tututni subtribes 1 Yukichetunne, 2 Tututni, 3 Mikonotunne, 4 Chemetunne, 5 Chelleshin, 6 Kwashtunnetunne, 7 Taltushtuntede (Galice). Source: Stephen Dow Beckham.

LEGEND

- Penutian Phylum
- Aztec-Tanoan Phylum
- Hokan Phylum
- Athapaskan-Eyak Language Group
- Salishan Family Isolate

Fig. 1.3 Oregon Indian distribution in 1850.

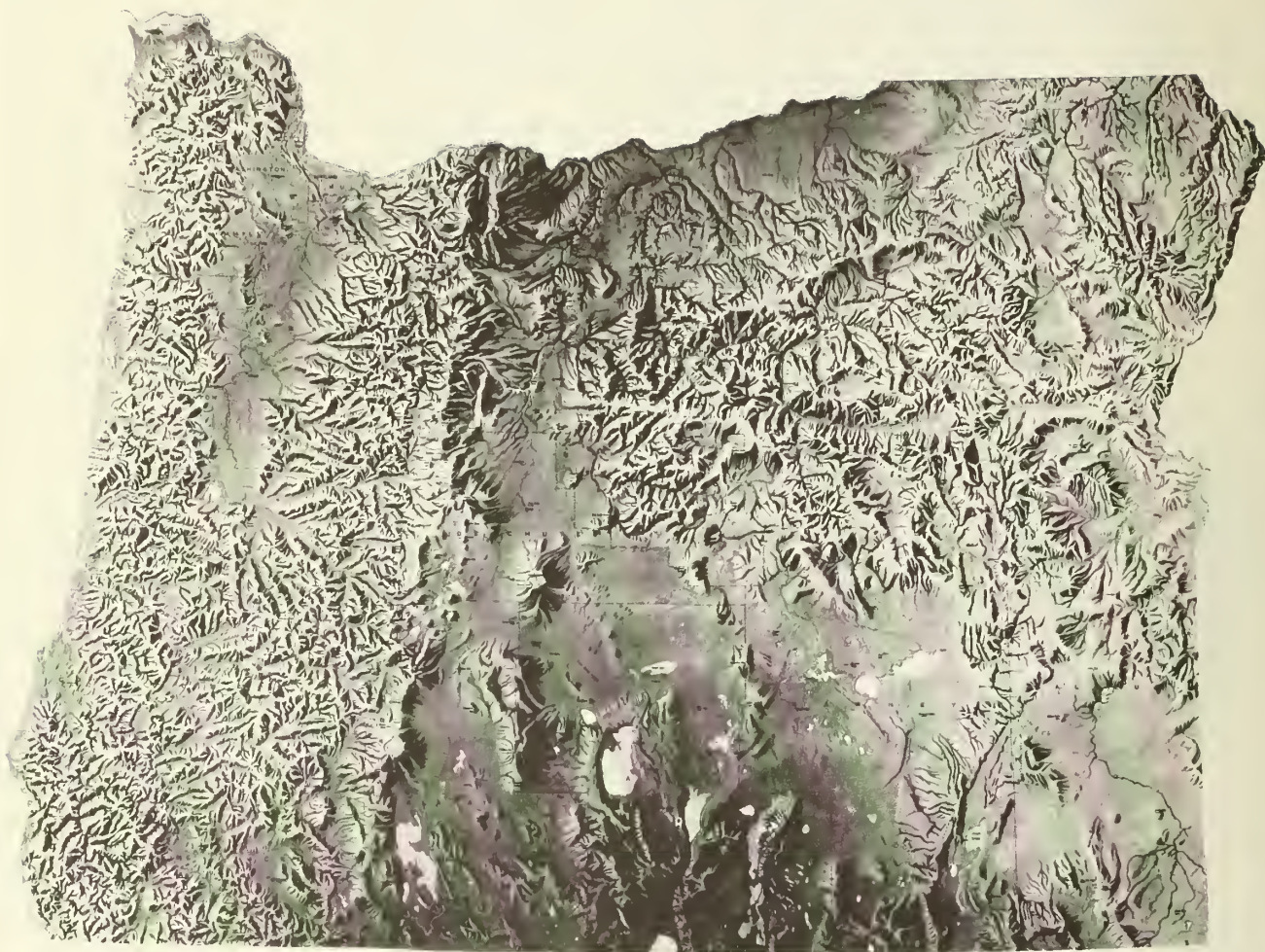
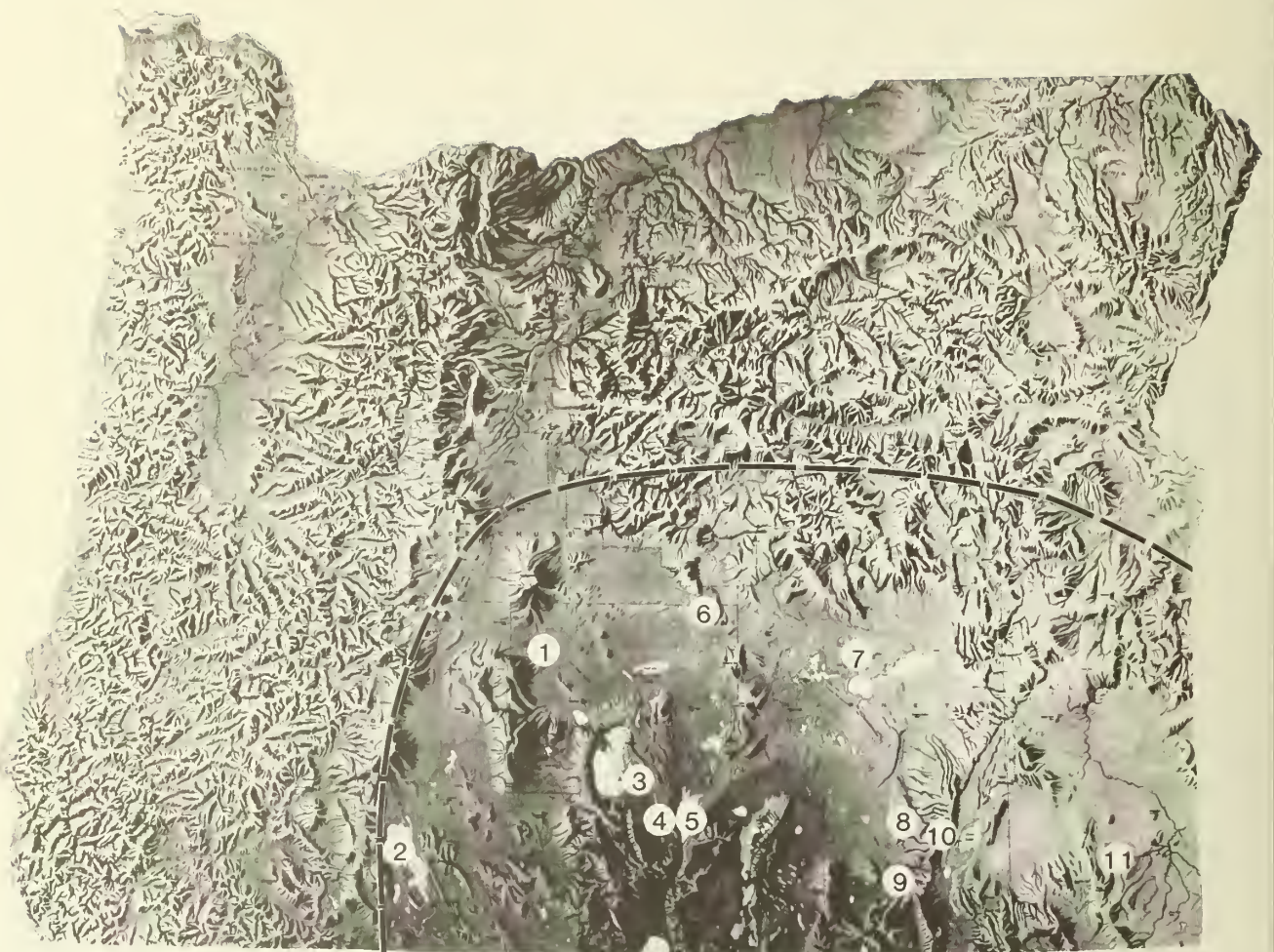


Fig. 1.4 Topographic map of Oregon.

with certain major environmental zones. Northern Paiute territory fits closely the Great Basin desert section of southeastern Oregon. Penutian-speakers, by contrast, occupy the more mountainous and better watered country to the north and west. Salishan, Athabaskan, and Hokan-speaking peoples occur as enclaves within the moister Penutian territory. The Klamath-Modoc, who are Penutian-speakers, occupy a region intermediate in topography and vegetation between the moist woodlands of the west and the desert shrub-lands of the east. These correlations reflect the fact that the cultural traditions of a people serve to adapt them to the natural environment which they occupy. Ultimately they tend to become bound to that kind of environment, which their traditional body of knowledge, learned and passed down over the generations, has equipped them to inhabit better than any other.

The technological and societal traditions that Oregon Native Americans developed in adapting to their land over the immense span of time that they have occupied it, is the subject of this book. Evidence of those traditions has been gathered by archaeologists and other scholars applying the scientific methods briefly outlined in the first part of this Introduction to the archaeological sites that are the invaluable record of the Native American past. Guidance in the interpretation of this archaeological evidence has been provided by the accounts of living American Indians, who have described and explained the traditional ways to generations of scholars. The work of other scientists, especially those who study past environments and the changes they have undergone through the millennia, is also crucial to the story, and their contributions will be referred to below.

The following chapters describe what is known, and suggest what yet might be learned, about the prehistory of Oregon. The account proceeds by natural regions: the Great Basin, the Middle Columbia River, the Lower Columbia and Coast, the Willamette Valley, and the Southwestern Oregon Mountains. The basic themes treated in each chapter are time and change, environment and human settlement, tools and tasks, the annual cycle, and social life. A concluding chapter places native Oregon lifeways in a broader context, pointing out some of their similarities to other cultures in other places and other times.



Key to Sites

- 1-Fort Rock Valley
- 2-Klamath Basin
- 3-Paisley Five Mile Point Caves
- 4-Chewaucan Cave
- 5-Lake Abert
- 6-Glass Buttes
- 7-Harney Basin
- 8-Roaring Springs Cave
- 9-Catlow Cave
- 10-Steens Mountain
- 11-Dirty Shame Rockshelter

Fig. 2.1 Map of Great Basin area showing site locations noted in text and illustration.

Great Basin

The narrative of Oregon's archaeological past is begun in the Great Basin region, because that is where the oldest sites so far known in the state are found (Fig. 2.1). A ^{14}C date of 13,200 BP on charcoal from an apparent firehearth at the lowest level of Fort Rock Cave implies that already more than 13,000 years ago, people were there. How much earlier this date might ultimately be extended is a problem for future research, but evidence from elsewhere on the continent, and from northeast Asia, makes a date of 15,000 to 25,000 BP seem likely for the first peopling of America.

Time and Environmental Change

The first Oregonians of record lived at a time near the end of the Pleistocene period, when massive mountain glaciers still occurred in the Cascades and on some higher ranges in eastern Oregon, most notably Steens Mountain. Vast lakes filled many of the now-arid desert basins east of the Cascades. Summer Lake, Lake Abert, the chain of lakes in Warner Valley, Malheur Lake, and others in eastern Oregon are much-diminished remnants of the great bodies of water present in Pleistocene times. Many of the early lakes have vanished completely, as in the Alvord and Catlow valleys, leaving only broad, level plains. These old lakebeds are frequently eroded and fringed with dunes which are composed of fine sediments from the former

lake floors, built up by the wind around the edges of the ancient basins. High on the surrounding hills three or four or more old beach terraces can often be seen, running for miles, indicating the extent and depth of the Pleistocene lakes. In some parts of eastern Oregon, beach lines occur as much as 350 feet above the basin floors, though most are of lesser elevation.

Animals then extant included the gamut of antelope, deer, mountain sheep, migratory and upland birds, rabbits and other small mammals, fishes, and predators that characterize the Great Basin country today. Also present were species which became extinct in the region at the end of the glacial age, including giant ground sloth, giant bison, camel, and horse. Plant species present in late glacial times were also those seen today in the region, but cold-tolerant forms such as spruce, fir, and other conifers were more abundant. Timberline occurred at lower elevations and alpine species were thus more broadly distributed. The sagebrush-grassland communities of the lower elevations, existing under better effective moisture conditions than those of the present, were no doubt considerably richer in grass cover and more diverse than they are today.

Between about 11,000 and 9,000 BP, world climate underwent a dramatic transition from the cold of the glacial period to the warmer conditions of the postglacial age. In Oregon the mountain glaciers and Pleistocene lakes dwindled, most of them disappearing altogether. During this time also, the horse and other Pleistocene animals became extinct.

In eastern Oregon the sagebrush-grassland communities and the animals which frequented them expanded in area, as alpine communities retreated upward to higher, cooler elevations. Arid conditions became pronounced between about 7000 and 4000 BP. There has been some climatic improvement since that time, but in general the last 9000 years or so have been characterized by a climatic regime very much like that of the present (Mehring 1977).

Environment and Human Settlement

Those characteristics of the natural environment having the most importance to human settlement are topography, flora, and fauna. The three elements are closely related, with variations in topography—elevation, degree of slope, direction of exposure, and drainage pattern—having important effects on the distribution and abundance of plants and animals in any given locality. In general, areas that are topographically diverse, including both lowland and highland terrain, are also biotically diverse, and offer greater possibilities for human exploitation than do relatively more uniform landscapes.

The effect of climatic fluctuation on biotic distributions is of obvious importance to an understanding of human use of the land. Broadly speaking, shifts in the temperature/moisture regime are less likely to wreak dramatic changes in species availability within a topographically diverse area than they are in more uniform terrain. A decrease in effective moisture that could eliminate important species from a flatland vegetation community over a vast area, might affect species distribution in an altitudinally varied landscape in only a minor way; there a given plant might have to shift its range upslope only a few hundred feet to find the proper temperature/moisture setting without causing any major change in its local availability. Thus, the extent to which a human population might be affected by climatic/environmental change over time would depend on the settlement pattern—the placement of hunting, gathering, and dwelling sites over the landscape—that it employed in making a living off the natural resources of its territory. These concerns are beginning to be addressed by Great Basin archaeologists, and their importance to the prehistory of the region will appear in the narrative to follow.

The environment to which the Great Basin peoples of eastern Oregon were adapted was a rich one, extreme and demanding but generous to those who knew it well. The region is high plateau, with a general elevation of about 3500 to 4000 feet. In the north, the High Lava Plains area is an extensive

tableland, given relief by scattered volcanic buttes and cinder cones. Toward the south it merges imperceptibly with the Basin and Range province, which is characterized by long north-south faultblock plateaus or mountain ranges with broad open valleys between. This province extends south well beyond the boundaries of Oregon, across Nevada and Arizona into northern Mexico. Relief here is often considerable, with altitude differences of up to 5000 feet between mountain peak and valley basin. In extreme southeastern Oregon is the Owyhee Upland; a rough, uneven plateau ancient and much eroded. It is deeply cut by the canyons of the Owyhee River and its tributaries.

Over all this country aridity is characteristic, and temperature fluctuations are extreme. Freezing, snowy winters and hot, dry summers are the rule; a large variance between daytime and nighttime temperature is also usual, especially in summer, when the temperature of a given place might be as high as 100° during the day, and as low as 50° at night.

Cultural Chronology and Time Markers

The passage of time is reflected in the tools and other objects made by the native occupants of the country. The earliest known people of the Great Basin region fashioned large leaf-shaped stone points which seem to have been used primarily as tips for heavy thrusting spears. The Clovis fluted point, the earliest well-defined and widespread artifact type known in North America, has been found at several localities in Oregon. At the Dietz Site in the central part of the state, a number of fluted points and the stone flaking debris derived from their manufacture represent the most important Clovis discovery yet made in the region (Fagan 1983). Such points have not yet been ¹⁴C dated in Oregon, but from sites in Arizona and New Mexico, as well as elsewhere on the continent, ¹⁴C dates indicate that the Clovis type was in use between about 11,500 and 11,000 BP (Haynes 1969). The Windust point type, also common in eastern Oregon, has been ¹⁴C dated between about 8000 and 10,000 BP at sites along the Columbia and Snake rivers, and may extend back further in time. In form and technology it is clearly related to the Clovis type. Remarkably, a point found in the Glass Buttes area of central Oregon (Mack 1975) appears to be a perfect example of the Clovis type when viewed from one face, but an excellent example of the Windust type when viewed from the other face! The technological similarity, as well as the overlap in time between the two types, indicates a continuity of cultural tradition between them (Fig. 2.2). Also early in the desert west is the Lake Mojave type which is broadly similar to Windust in

Fig. 2.2 Projectile points from the Early period, Great Basin, Oregon. At upper left is shown the fluted face and unfluted obverse face of a point from Glass Butte. Note the similarity between the unfluted face of this point and the accompanying stemmed Windust points. Large leaf-shaped points appear at lower right.



both form and apparent date. An apparently resharpened specimen from Fort Rock Cave in south-central Oregon, perhaps as much as 13,200 years old by ^{14}C assay, may be of this type.

Another series of types characterizes the period approximately 8000-3000 BP. These points are smaller, used to tip light javelins or darts that were hurled with the aid of an atlatl, or spear-thrower (Fig. 2.3). The Cascade and Northern Side-notched types often occur together, though it is believed that the Cascade point first appeared considerably earlier than the Northern Side-notched type. These two types are common throughout the Northwest, but reach their southerly limits approximately at the latitude of the Oregon-Nevada border. Points of the Elko and Pinto series occupy essentially the same time span. They co-occur in Oregon with the

Northern Side-notched and Cascade types, but beyond the state boundaries tend to have a more southerly distribution, being common throughout the deserts of Nevada and Utah, and extending into southern California.

Small points made for use with the bow and arrow characterize the last 3000 years of prehistoric time (Fig. 2.4). Widespread throughout the western deserts are the Rose Spring, Eastgate, and Desert Side-notched types. Most common in eastern Oregon are the Rose Spring and Eastgate types, which are closely related and tend to grade into one another. These types date from approximately 3000 BP down to historic times. The relatively less common Desert Side-notched type was probably made from about 1000 BP onward; arrows dating to



Fig. 2.3 Projectile points from the Middle period, Great Basin, Oregon. Top row: Cascade willowleaf (2), Black Rock concave-base (3); Middle row: Humboldt lanceolate (2); Northern Side-notched (3); Bottom row: Elko Eared (3), Pinto Indented base (2).

the early historic period are commonly tipped with points of this type.

Other projectile points beyond the types just mentioned were of course manufactured, but those named here are the best-defined and most readily recognizable, as well as being the ones dated with the highest degree of confidence. The types named serve as time period diagnostics for the Great Basin portion of eastern Oregon; since the time spans over which they were made are known, they afford the archaeologist a means of roughly dating human occupation at any location where they occur. In cases where organic matter datable by the ^{14}C method is absent, they often provide the only evidence for assessing the age of archaeological remains.

Major Sites

From a small dry cave about a mile west of south-central Oregon's famed Fort Rock volcanic formation there were excavated in 1938 many well-preserved sandals, woven of sagebrush bark (Cressman, Williams, and Krieger 1950; Cressman et al. 1942). The Fort Rock Cave site is of major importance in the history of Oregon archaeology. In 1951, shortly after the development of the ^{14}C dating technique, a sandal of Fort Rock type was directly dated at 9000 BP. This was an impressive age, but further work at Fort Rock Cave in 1966 and 1967 produced yet earlier dates (Bedwell 1973). From deposits not reached during the previous excavations because they lay beneath large rocks fallen from the cave ceiling, were obtained four ^{14}C

Fig. 2.4 Projectile points from the Late period, Great Basin, Oregon. Top row: Rose Spring (3), Desert Side-notched (2); Middle row: Rose Spring; Bottom row; Eastgate Expanding stem.



dates which grew in age with increasing depth: 4450, 8550, 10,200, and 13,200 years BP. The earliest date was determined from flecks of charcoal taken from a large black stain believed to represent the remains of an ancient firehearth. This charcoal was contained in a thin layer of earth which directly covered a bed of gravels, rounded by wave action at a time when ancient Pluvial Lake Fort Rock, now completely vanished, formed a beachline at the elevation of the cave. At or near the level from which the ^{14}C date came were found two projectile points, a fragment of a milling stone, and a handful of small chipped stone cutting and scraping tools (Fig. 2.5). Because the circumstances of this find were not documented in detail, there is controversy over the validity of the date (Haynes 1971). Nevertheless, at the time of writing this assemblage may reasonably be claimed as the earliest evidence

of human activity in Oregon, and perhaps in all of western North America.

Some evidence for later times was obtained from the upper levels of Fort Rock Cave, but a better record came from the Connley Caves, about 10 miles to the south (Bedwell 1973). Excavations in a series of small shelters along the base of a bluff penetrated a thick layer of air-deposited volcanic ash from the cataclysmic eruption of Mount Mazama which, 7000 years ago, formed the great caldera now occupied by Crater Lake in the southern Cascades. The ash from the caves was identified by petrographic and geochemical methods as identical to that found at Crater Lake, the site of the original eruption (Randle, Goles, and Kittleman 1970; Kittleman 1973). Above the ash layer artifacts were relatively few, but below it was found a rich

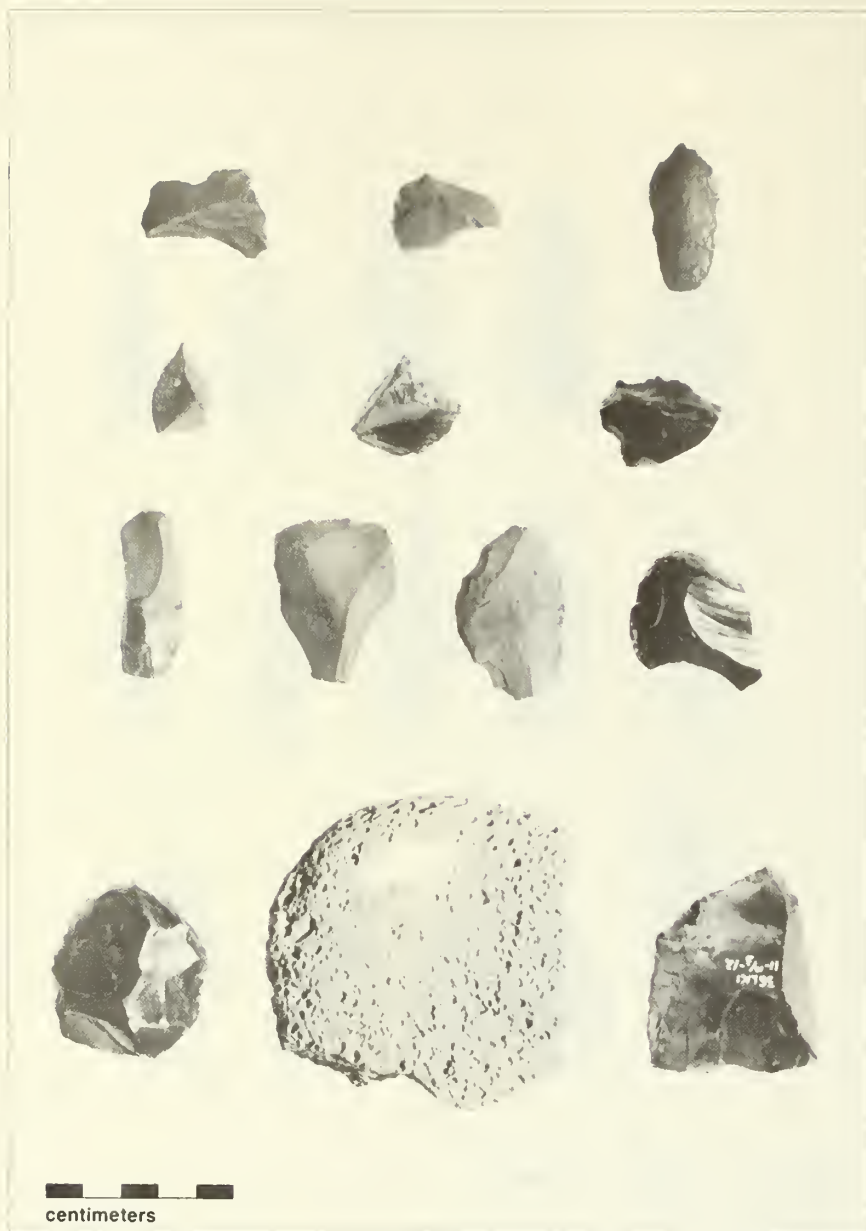


Fig. 2.5 Early assemblage from the top of the lake gravels at Fort Rock Cave. The projectile point at top right somewhat resembles the Lake Mohave type.

assemblage of projectile points, knives, scrapers, graters, and drills of chipped stone, milling slabs of ground stone, food bone refuse, and other specimens. A series of ^{14}C dates, 21 in all, ranged from 11,200 BP to 3140 BP, coming from levels both below and above the volcanic ash bed.

The local environment changed significantly during the time that people occupied the Connley Caves. Charred wood from campfires built between 11,000 BP and the time of the 7000 BP Mazama ashfall was identified as pine. Today, the forest that stands before the Connley Caves is Juniper, a species that occupies a warmer and drier habitat. This is clear evidence that the climate prior to 7000 BP was somewhat cooler and moister than it is now. Small mammal and bird remains from the caves reinforce this interpretation. Bones of the pika, a small

creature which today occupies cool, mountainous uplands, were found in the pre-7000 BP levels at the Connley Caves, but not in the later levels, and pika do not occur in the Fort Rock Valley today. Also consistent with these observations is the fact that the bones of waterbirds were common in the pre-7000 BP deposits, but missing from those laid down after that time. This suggests that Paulina Marsh, which exists today in reduced form a mile or two to the south of the Connley Caves, must have been much more extensive prior to 7000 BP, and to have undergone a major drying after that time (Grayson 1979).

Human occupation of the area seems to have been affected by these environmental changes. The abundance of specimens beneath the Mazama ash layer suggests a relatively intense occupation prior

Fig. 2.6 Projectile points from Dirty Shame Rockshelter. The specimens are arranged with earliest types at the bottom, and the latest on top.



to 7000 BP. Lighter occupation followed, until after about 5000 BP, when there was again an increase in the density of cultural remains. Occupation probably continued after the 3140 BP date indicated by the latest ^{14}C determination, though this cannot be conclusively affirmed. The upper levels of the cave deposits had been disturbed by artifact collectors and were undatable, but projectile points of later types (Rose Spring and Eastgate) from the site suggest that it may have been occupied down until quite recent prehistoric times.

Far to the east of the Fort Rock Valley, in the Owyhee Uplands of extreme southeastern Oregon, Dirty Shame Rockshelter provides a comparable record of human occupation (Aikens, Cole, and Stuckenrath 1977). There excavations penetrated to a depth of over 15 feet, recovering rich cultural

remains from the uppermost six feet or so of dry deposit, and limited evidence below that level. Twenty-two ^{14}C dates span a period from 9500 to 365 BP, but a gap in the dates between 5850 and 2750 BP indicates that the site saw little or no human occupation during that 3000-year interval.

Perhaps the most arresting conclusion to come from the Dirty Shame study is that the general way of life of its occupants, and much of their technology, changed scarcely at all over the entire period of record (Figs. 2.6, 2.7, 2.8, 2.9). Milling stones for seed processing, and projectile points, knives and scrapers used in the hunt were well represented in all occupation levels. Projectile point styles changed over time, and there were minor shifts in the frequency of certain other types, but the same functional classes of tools were present



Fig. 2.7 Stone drills and gravers from Dirty Shame Rockshelter.



Fig. 2.8 Flaked stone knives from Dirty Shame Rockshelter.

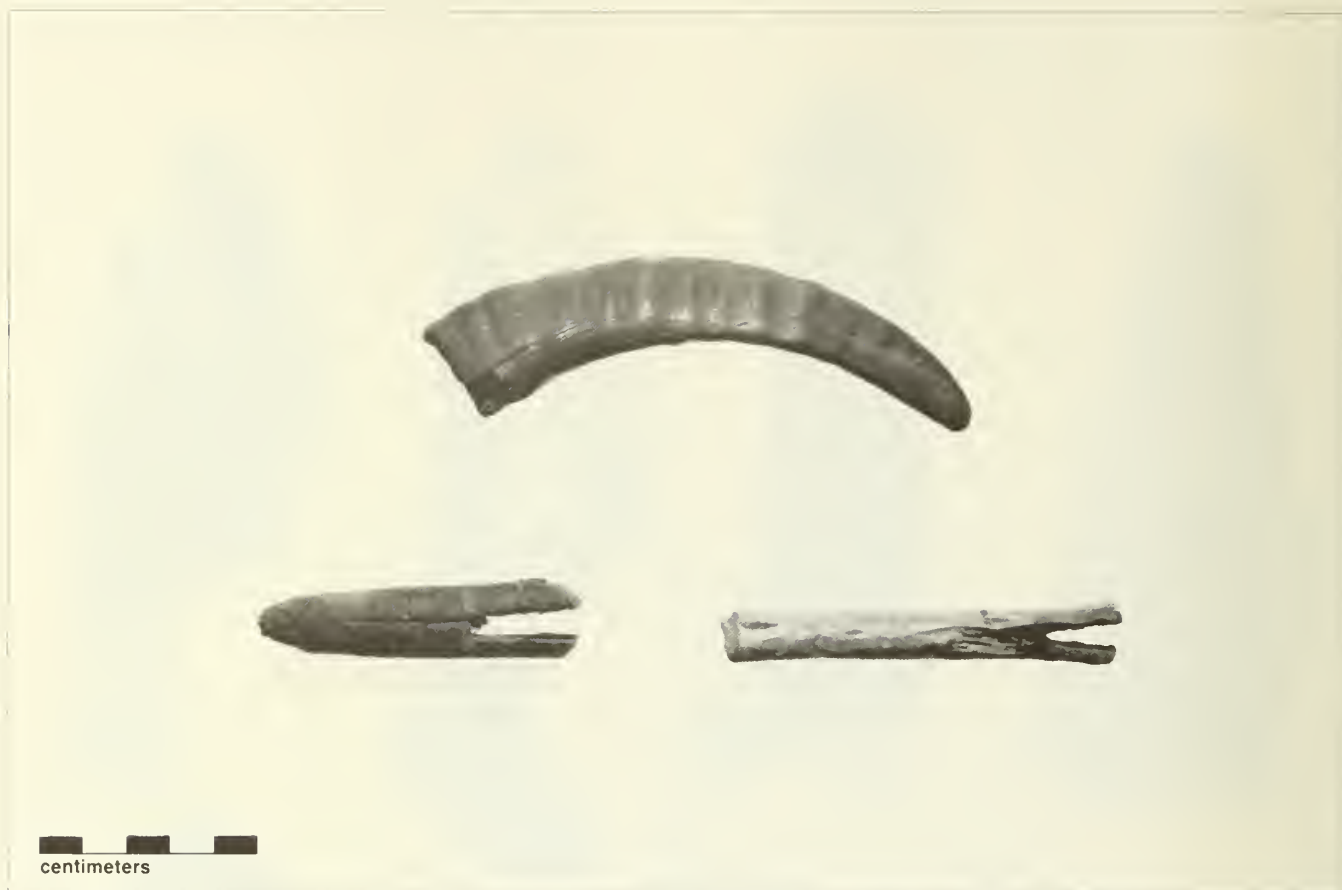


Fig. 2.9 Hafts for stone knives from Catlow Cave. The mountain sheep horn (above) is hollowed at the broad end for insertion of a stone blade. The two wooden specimens (below) probably once had fiber or sinew lashings to hold stone blades in the notches.

throughout. The animal bones left in the rockshelter indicate that the occupant's diet was also much the same throughout the site's history. Jackrabbits and cottontails, marmots, antelope, mule deer, and bighorn sheep were substantially represented in virtually every level. The plant and animal remains found in dessicated human feces, or coprolites, add to the picture of a diet composed of locally available species:

The coprolites from Zones I, II, and IV at Dirty Shame Rockshelter reflect a well balanced vegetable and animal dietary composed largely of species preferring riverine and riparian habitats. The meat diet of small mammals, antelope, freshwater crayfish, shellfish, fish, and insects, was complemented by plant foods which included sunflower and goosefoot seeds, pricklypear, sego lily, wild onion, and fruits of the wild rose and cherry. The greater portion was exploited in the locally restricted moist canyon bottoms while the more extensive dry upland probably contributed pricklypear, antelope, and lagomorphs (Hall 1977:10).

A quantitative study of plant remains indicates that between roughly 9500 and 7500 years ago, vegetal food harvesting was concentrated on plants which ripen in the late spring and early summer. Thereafter, species which become available at various times from late spring through fall were collected, with some short term fluctuations in emphasis on one or another part of the gathering season (Sanford 1983: Fig. 6). In general, the implication is that after about 7500 BP people spent the better part of a long summer season harvesting plant foods around Dirty Shame Rockshelter.

Change over time in the local biotic environment was apparently minimal, yet not insignificant. Analysis of plant parts and pollen from the site indicates that there have been no vegetational changes of ecological significance near the rockshelter since the inception of the record, and that precipitation patterns like those of the present regional autumn-winter-spring precipitation with occasional summer thunderstorms—have prevailed throughout (Sanford 1983). On the other hand, analysis of the site's mammalian fauna indicates a

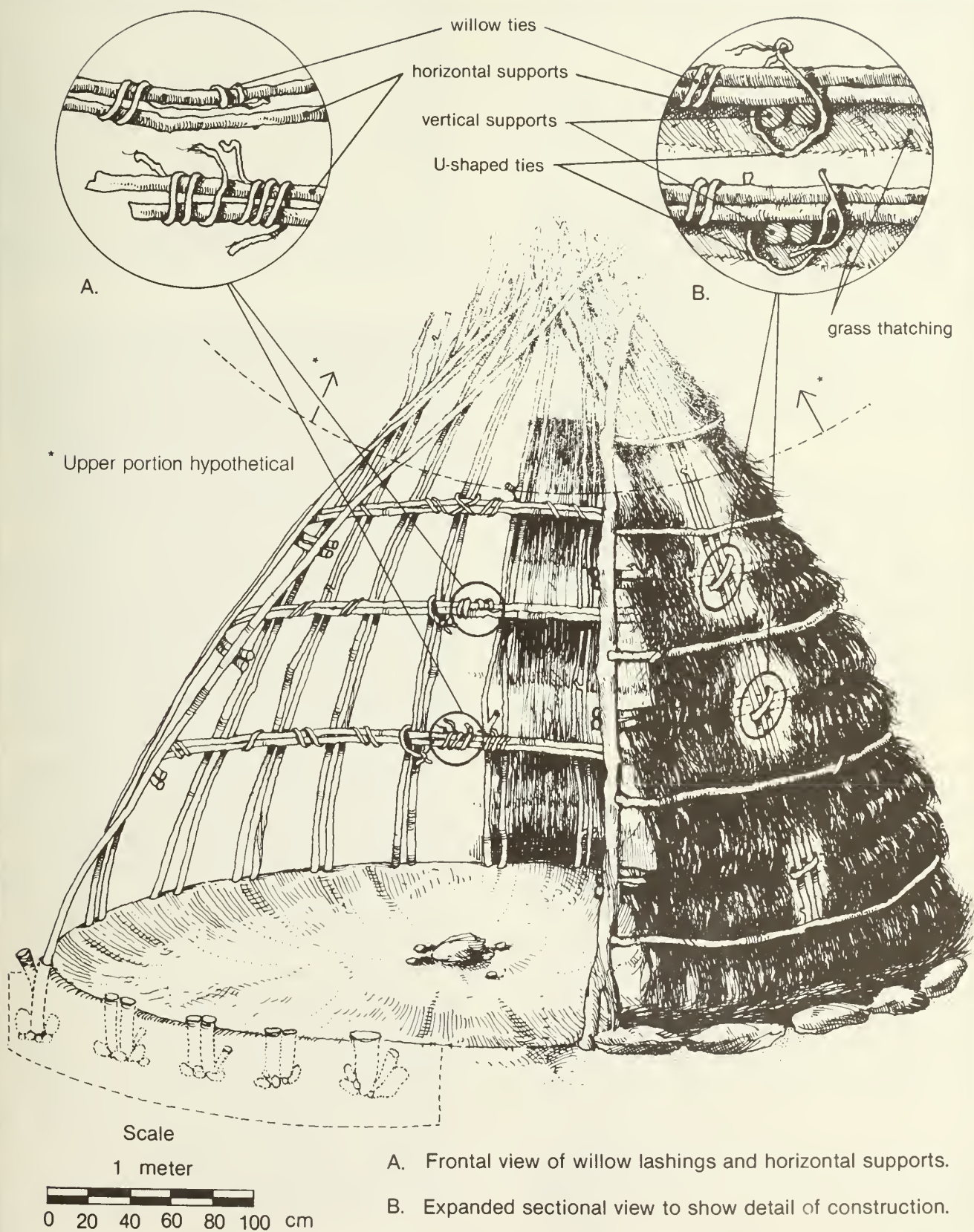


Fig. 2-10 Reconstruction drawing of pole-and-thatch wickiup from Dirty Shame Rockshelter, based on data from excavation (Willig 1982).

small but significant shift in local conditions that roughly correlates in time with climatic trends documented from many other localities all over the west (Grayson 1977).

In levels dated before about 8000 BP the bones of mammals which occupy relatively moist habitats, and those of mammals which occupy relatively dry habitats, were present in roughly equal abundance. After that time, there was an uneven but cumulatively significant decrease in the percentage of bones from creatures of moister habitats, and an increase in the bones of creatures of dryer habitats. As noted above, between 5850 and 2750 BP the site provides no record; in the levels occupied after 2750 BP, an apparent reversal of this drying trend appeared, but the relative abundances of the two types of mammals never returned to pre-8000 BP levels, and the record ends at about 400 BP with the animal indicators still suggesting a climatic regime clearly dryer than that in evidence prior to 8000 BP.

Human occupation at Dirty Shame Rockshelter was clearly affected by the climatic fluctuations noted. The break in occupation beginning about 5850 BP came at a time of decreasing effective moisture; apparently, as the landscape dried, the abundance of natural food resources in the area shrank to a level that made it unprofitable for human groups to exploit them. When people resumed regular use of the area after 2750 BP, environmental conditions had apparently improved somewhat, raising the availability of the area's natural food resources to an economically feasible level.

The activities that took place at Dirty Shame Rockshelter before and after the time of abandonment were closely similar, but not identical. Stone drills, graters, uniface scrapers, and use-chipped flakes were more common in the later deposits, suggesting that more woodworking, bone-working, and hide-working chores were carried out at the site than had been the case earlier. Most importantly, the remains of a series of small conical or domed house structures framed with poles and thatched with native ryegrass were found in the later level (Fig. 2.10), suggesting that people lived at the site for extended periods during the later occupation. The plant and animal remains from both the earlier and later periods suggest that people were at the site for the late summer-early fall harvest. The houses and other evidence of increased domestic activity during the later period suggest that during this time the site might have served also as a winter encampment. The Owyhee uplands are cold and snowy in the winter, but the setting of Dirty Shame Rockshelter, in a deep canyon out of the wind, with a broad southern exposure to catch the winter sun, makes this a plausible interpretation.

The other change of note at Dirty Shame was the appearance in the post-2750 BP levels of small projectile points for use with the bow and arrow. Points found in the earlier occupation were larger types, for use with the atlatl and dart, and perhaps with the thrusting spear. Dart points continued to occur after the break in occupation, suggesting that the atlatl and dart continued in use to some extent even after the introduction of the bow and arrow. In addition to the projectile points themselves, these hunting weapons were represented at Dirty Shame by wooden dart foreshafts notched for the insertion of a stone point, by arrowshafts and split feathers for fletching them, and by a fragment of a wooden bow.

Normally perishable artifacts preserved in the dryness of the rockshelter deposits included basketry, sandals, and much cordage made of plant fiber. The textile industry included both soft mats and bags, and more rigid containers. Sandals of the famous Fort Rock type, as well as other varieties, were represented by 116 more or less intact specimens and 60 fragments. The cordage was probably used in a variety of ways: in lashings and ties, carrying and hunting nets, and snares.

To the north and west of Dirty Shame Rockshelter, in east-central Oregon, are the Catlow and Roaring Springs caves. Excavated in 1937 and 1938, they (like Fort Rock Cave) are of importance to the history of scientific archaeological investigation in Oregon, as well as for the rich and remarkably well-preserved artifact assemblages which they yielded (Cressman, Williams, and Krieger 1940; Cressman et al. 1942). Both are located west of Steens Mountain, about 30 miles apart along the eastern edge of the Catlow Valley. Catlow Cave stands on the highest beachline of Pluvial Lake Catlow, which occupied the valley during Pleistocene times. Roaring Springs Cave, named for the rushing flow of nearby artesian springs, is situated similarly. Both command broad views of the ancient lakebed, now sagebrush-grassland spotted here and there with patches of marsh and small shallow ephemeral lakes or ponds.

The age of human occupation at Catlow and Roaring Springs caves was never directly established, since they were excavated long before the development of ^{14}C dating. Their approximate ages have since been determined, however, by comparison of their artifacts to those from other ^{14}C dated sites, using the technique of typological cross-dating. Sandals of sagebrush bark from Catlow Cave include specimens of the Fort Rock type, ^{14}C dated at Dirty Shame Rockshelter as spanning the period 9500-5850 BP. Sandals of other types compare to some dated as late as 2750 BP at Dirty Shame. Chipped stone dart points and arrowpoints are of types which at Dirty Shame and

the Connley Caves span the last 8000 years. It thus appears that human occupation at Catlow Cave probably spanned at least 8000, and perhaps all of the last 9500 years. Most of the same artifact types were found at Roaring Springs Cave, but since sandals of the early Fort Rock type were missing, and the sandals which did occur were of a type dated more recently at Dirty Shame, an occupation span of roughly the last 6000 years is suggested for Roaring Springs.

The importance of the cultural remains from the Catlow Valley caves is indicated in the following quotation:

The rich haul of artifacts from the sheltered, dry sites of the Northern Great Basin, especially Catlow and Roaring Springs caves, provides one of the clearest reflections yet available of the ancient Desert Culture lifeway. Items of clothing included sagebrush bark sandals and rabbitskin robes. Footwear must have been very important to a people who were obliged to travel far and often, and it is the most abundantly attested form of personal clothing. For gathering, fetching, and carrying there were a variety of twined baskets, soft bags, and nets. Digging sticks of mountain mahogany for taking roots and shoots, and manos and metates for breaking and grinding seeds, were well represented. Atlatls and darts, bows and arrows, and stone projectile points to arm them, all occur in the collections, as do numerous cutting and scraping tools of chipped stone. The hunt provided not only food, but furs, sinews, and bones used in making clothing, in the hafting of stone tools, in the fashioning of bow strings, and in the making of awls and other manufacturing tools. Flaked stone drills and abrading tools of rough scoriatic basalt further attest the manufacture of wooden objects such as atlatls, bows and associated gear.

Neither was the assemblage unrelievedly utilitarian. Many of the baskets from Roaring Springs Cave had been ornamented in geometric patterns by inlaying fibers of different colors; many of the dart shafts and arrow shafts had been painted with rings of red and blue; a pair of tiny baby's sandals had been given a soft inner lining of rabbit fur; a piece of cane had been cut and perforated as a musical flute; and a perforated **Olivella** shell from the Pacific coast had perhaps been strung as a bead. The collection illustrated, in short, not only the day-to-day tasks of the desert lifeway, but also some of its pleasures (Aikens 1982:147).

The series of photos in Figs. 2.11-2.21 illustrate some of the richness of this inventory.

That locally available game food resources changed over the time that Catlow Cave was occupied is documented by the faunal assemblage. The bones of water birds, including pintail, teal, lesser scaup, goose, coot, and avocet were largely limited to the deepest level of the cave deposit. The bones of land mammals, conversely, including mountain sheep, bison, and rodents, were predominantly from the higher levels. This pattern seems to reflect quite clearly the local availability of wetland habitat for aquatic animals earlier in the history of the site, and its diminution as time went on. Other game species attested in the faunal assemblage were mule deer, marmot, pika, jackrabbit, and sagehen. Predators, including coyote, fox, lynx, and owl were also represented. With the exception of the pika, all these animals are to be found in the Catlow Valley today, though suitable habitat for water birds has become quite restricted. Surprising is the absence of Pronghorn antelope from the faunal collections, in view of its modern abundance in the region.

Catlow and Roaring Springs caves probably served as relatively sedentary sites, perhaps fall and winter base camps for small groups which at other seasons ranged out from them to exploit the resources of the surrounding region. Most of the major sites so far investigated in the Northern Great Basin seem, in fact, to have been basically long-term camps, and archaeological information on the pattern of movement and types of sites utilized during other parts of the annual cycle has not been systematically developed. Research still ongoing at the time of writing is devoted to studying this question, as outlined below.

The Steens Mountain Prehistory Project deals with a vast region, some 35 by 40 miles across, that includes the Catlow Valley on the west, Steens Mountain in the center, and the Alvord Basin on the east (Aikens, Grayson, and Mehninger 1982). One basic objective of the research is to identify the various types of human activity sites within the region as a whole, and to determine from them the annual round of their ancient occupants. Since the sites were used as bases from which to exploit the resources of the natural environment, it is important in determining their function to study their geographical distribution in relation to altitude and association with such natural features as streams, springs, marshes, rock outcrops, and different vegetation communities.

As a result of extensive archaeological survey over three summer seasons, prehistoric sites have been discovered throughout the Steens Mountain region. They range from traces of occupation around desert marshes on the valley floors at about 4000 feet elevation to evidence found on the uplands of Steens Mountain at nearly 10,000 feet. Some sites

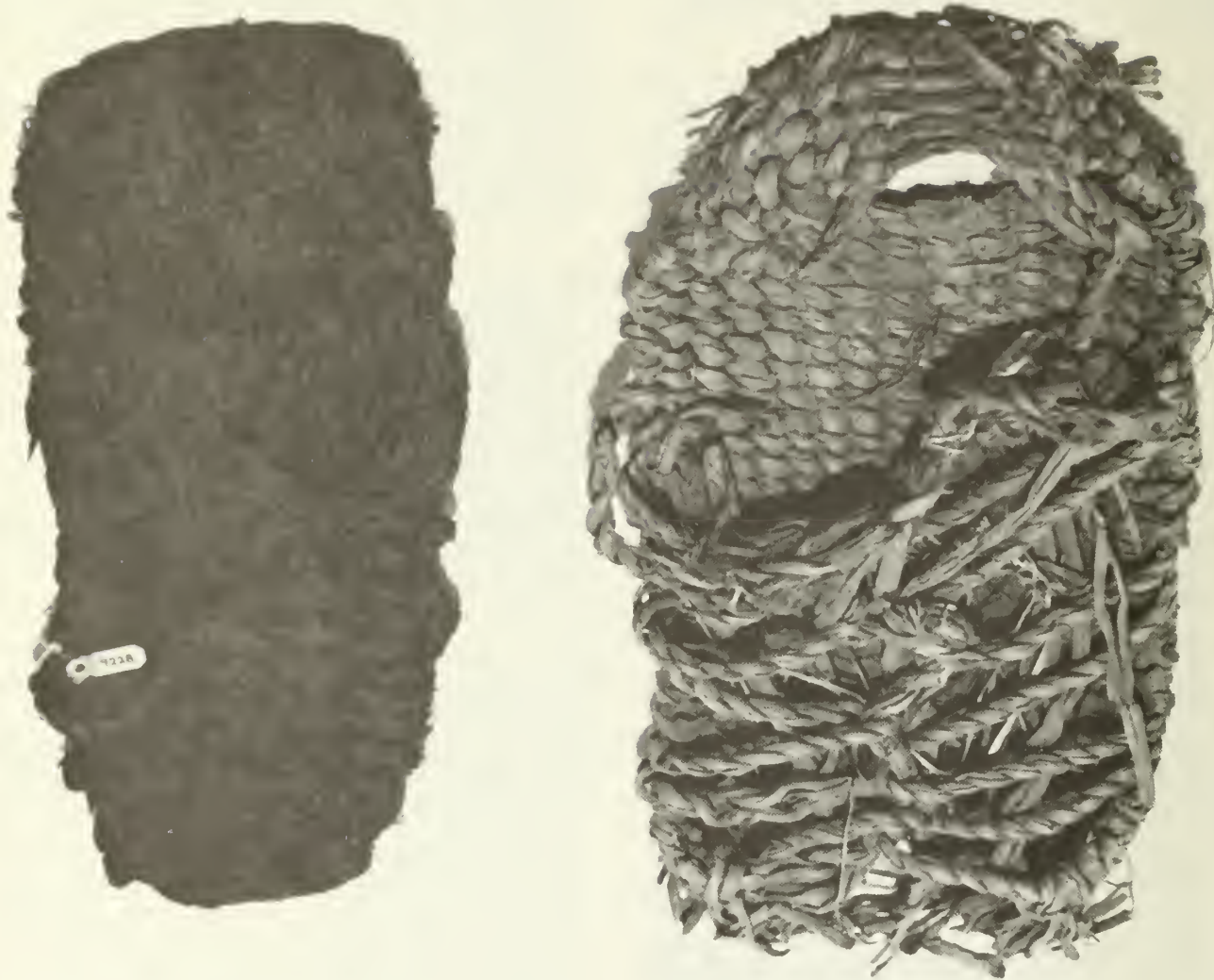


Fig. 2.11 Woven sandals. Left, specimen of sagebrush bark from Fort Rock Cave; right, specimen of tule from Paisley Five Mile Point Cave, south-central Oregon.

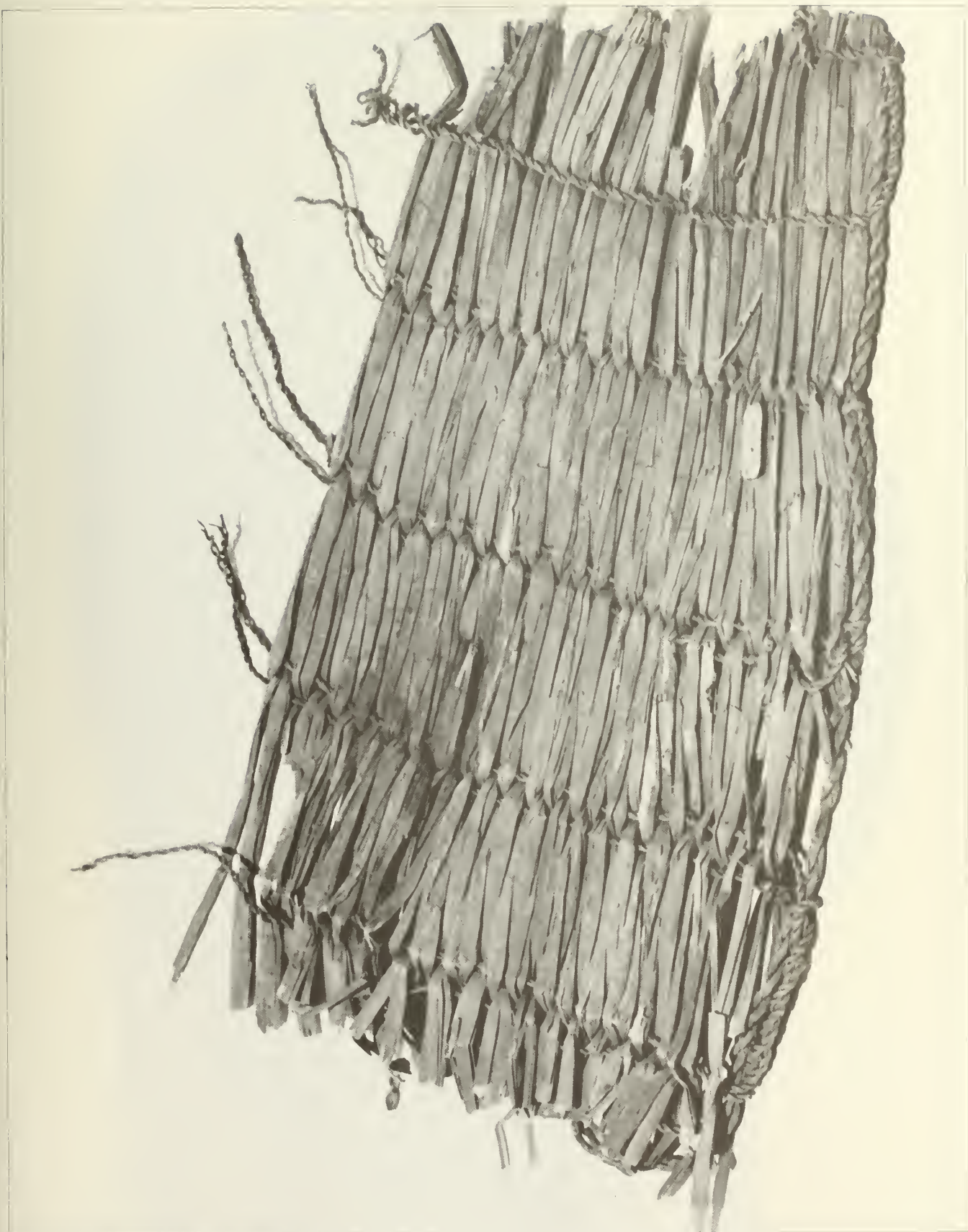


Fig. 2.12 Fragment of tule matting bound together with fiber cordage, from Roaring Springs Cave.



Fig. 2.13 Large tule fiber bag from Chewaucan Cave.



Fig. 2.14 Large twined basketry tray from Chewaucan Cave.



centimeters

Fig. 2.15 Skin bag from Chewaucan Cave.



Fig. 2.16 Badger-head bag from Chewaucan Cave.

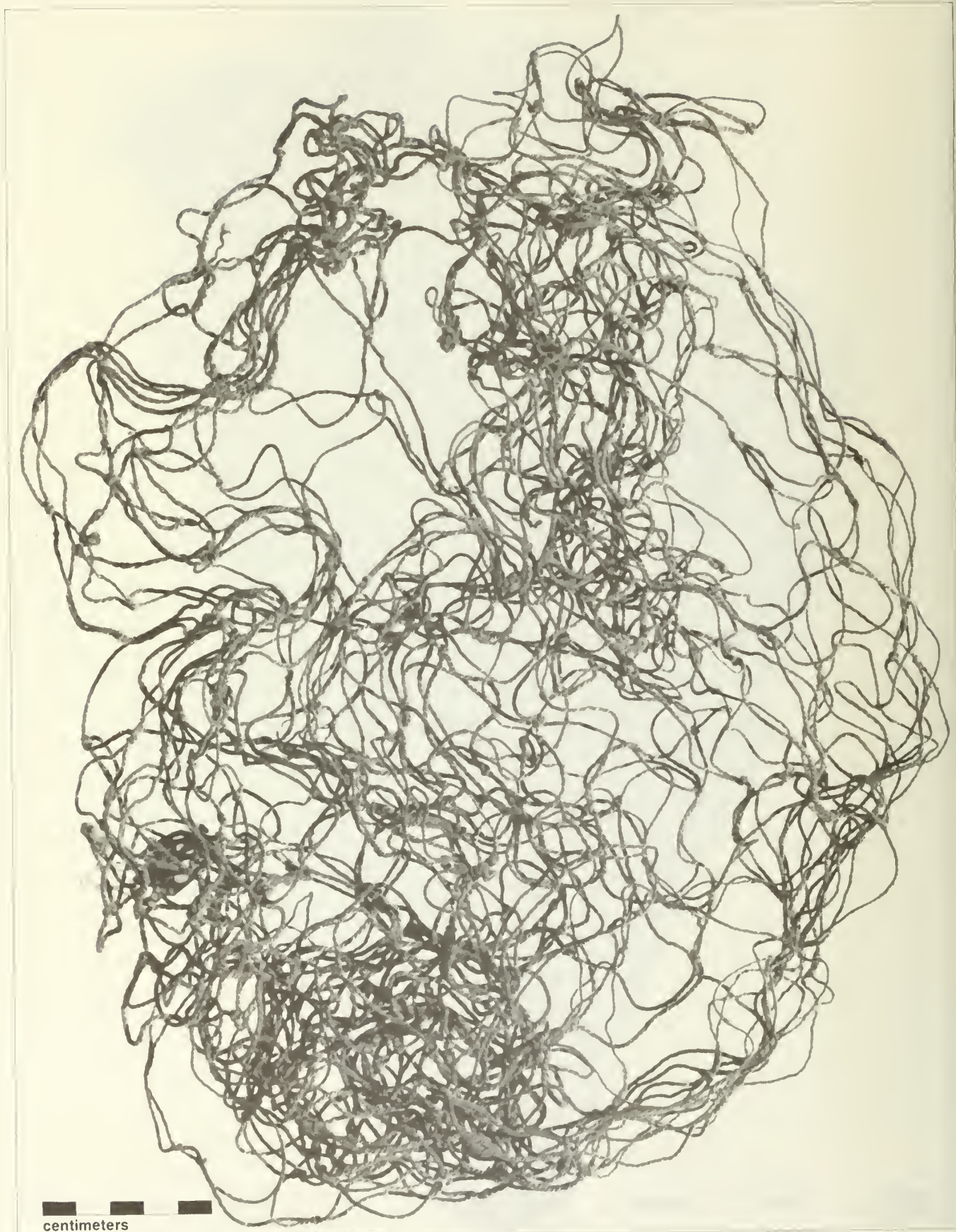


Fig. 2.17 Small carrying net from Roaring Springs Cave.



centimeters

Fig. 2.18 Large rabbit net made of plant fibers from Chewaucan Cave.



Fig. 2.19 Atlatl from Roaring Springs Cave.



Fig. 2.20 Bow fragment and parts of arrows from Roaring Springs Cave. Note notched and sinew-wrapped end for attachment of bowstring.

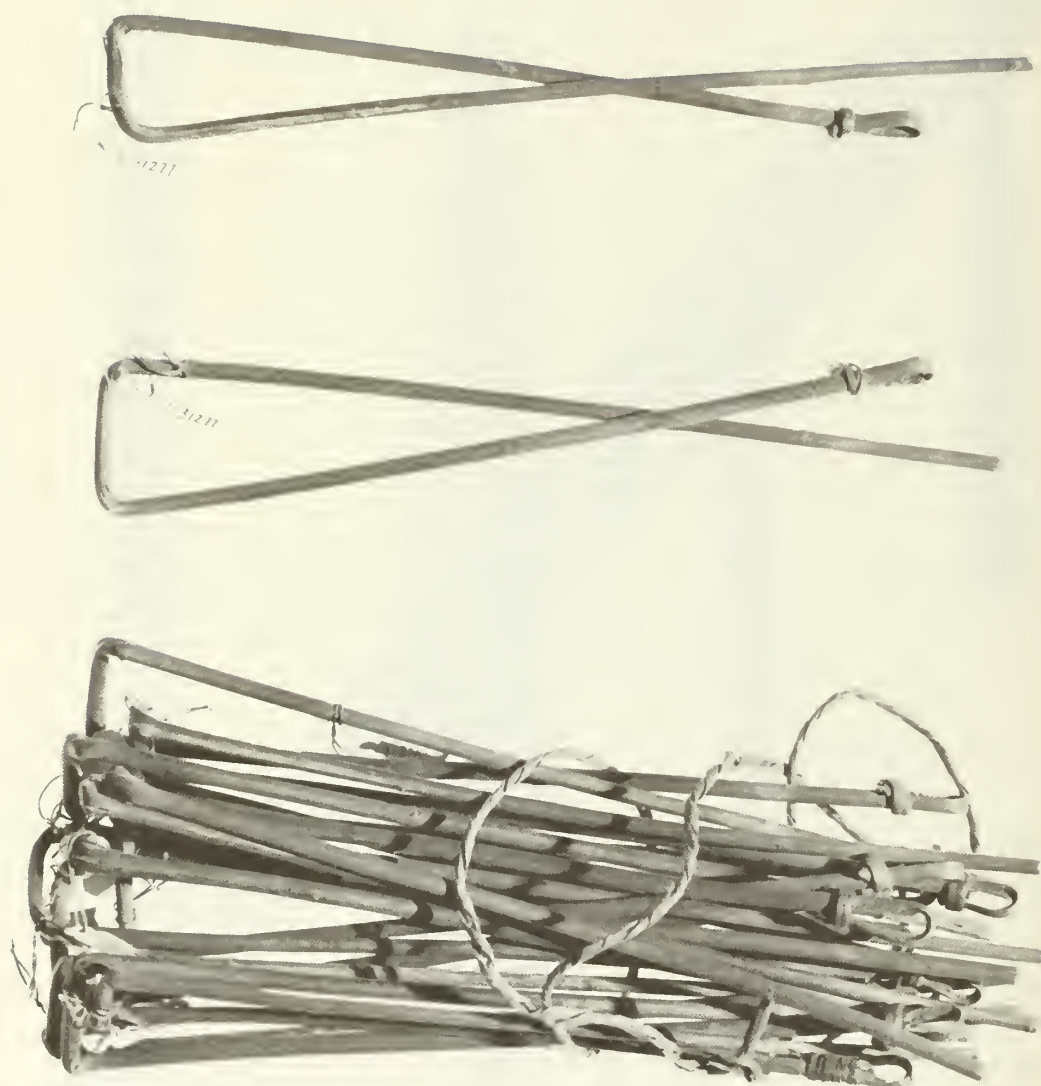


Fig. 2.21 Wooden snares from Chewaucan Cave. These snare parts were originally found in a skin bag.

consist of only a very thin scatter of obsidian flakes on the surface of the ground, while others are deeply buried and rich in artifactual remains. The information gathered has not yet been analyzed in detail, but it is clear that the sample includes some sites occupied at least as long ago as 8000-9000 BP, and others that probably date to very late prehistoric times.

The project seeks to test the hypothesis that human occupation patterns in the Steens Mountain region changed over time, in concert with climatic changes which affected the distribution and abundance of the natural food resources upon which the people depended. Records of environmental change in the Steens Mountain region over the period of human occupation have been developed through analysis of fossil pollen found in sediment cores taken from lakes and ponds there. A core from Wildhorse Lake, at the top of Steens Mountain, gives a record of the past 9000 years. Airborne pollen, falling into the lake continuously over that time and becoming incorporated into the gradually accumulating lakebottom sediments, was preserved by its constant immersion in a watery medium. By identifying under the microscope pollen grains from various depths, project paleoenvironmentalists were able to reconstruct the vegetation history of the region. A comparison of the changing ratios between sagebrush pollen and grass pollen over time gives a record of fluctuations in effective moisture in the area (Fig. 2.22).

Except for some short-term fluctuations, grasses, which are favored by cooler and/or moister climatic conditions, dominated over sagebrush from the inception of the pollen record down to about 7000 BP. From 7000 to about 4000 BP, sagebrush was dominant over grass, signifying less effective moisture in the area, probably the result of both a warming and a drying trend. Thereafter, for the period 4000 BP-present, grasses once again were dominant, signifying a return to somewhat cooler and/or moister climatic conditions. Since the record of the last 4000 years apparently represents a climate approximately like that of historic times, this indicates that the climate of the interval 7000-4000 BP was more arid than that of the very recent past. Comparable evidence from a second pollen core at Fish Lake, also on Steens Mountain, verifies this sequence.

The effect of these long-term environmental shifts on the pattern of human occupation in the region at various times in the past remains to be determined from analysis of the voluminous site survey data collected by project archaeologists. It is speculated that drier conditions may have fostered a general shift of human populations toward higher, cooler elevations, and a clustering of settlements around a relatively limited number of stable and dependable

water sources. Conversely, it may be that during periods of cooler and moister climate, people might have occupied a greater variety of places, in a more dispersed pattern. More subtle changes may also have taken place. Whatever the actual result of the analysis, light will be shed on the relationship between the natural environment and human use of it over a period of thousands of years—far longer than that covered by any conventional historical record.

Another example of the exciting evidence for the human past to be found in the Great Basin region of Oregon is the recent discovery of a major series of settlements along the shoreline of Lake Abert. These sites became known through archaeological studies made in connection with a proposed highway project. The magnitude of the find is made clear by the following quotation:

Altogether, in the 12 miles of eastern Lake Abert shoreline, there are so far recorded 32 prehistoric sites. Twenty-one of these are village sites with housepits, five show cultural debris on the surface but have no visible housepits, and the remaining six are clusters of petroglyphs [rock engravings] with no visible house depressions. The number of housepits in the area has reached a staggering 371. Another regularly encountered feature is the stonewalled circular house, of which there have been counted 51. We have counted 92 boulders with petroglyphs on them, and several with pictographs [rock paintings] as well (Pettigrew 1980a:49-67).

At the time this is written, only very limited excavations have been conducted at Lake Abert; most of what is known is based only on surface observations. Though much remains to be learned, however, the importance of the locality is already clear. The sites so far studied appear to range in age between about 4500 and 500 BP. This estimate is based largely on the finding of projectile point types of known age, but four ¹⁴C dates substantiate human presence between at least 3500 and 750 years ago.

Lake Abert is now an aquatic desert. Extremely alkaline, the waters today support only tiny brine shrimp, fairy shrimp, water fleas, and algae. However, the shells of freshwater snails and clams, as well as traces of catfish bone have been found in archaeological test excavations, indicating that the lake was much more productive in the past. Five ancient beach terraces are clearly marked on the rocky slope above the lake, and cultural remains have been found on all but the highest one. Apparently, people lived around Lake Abert from a time when it stood much higher than it does now until it had shrunk to virtually its modern level.

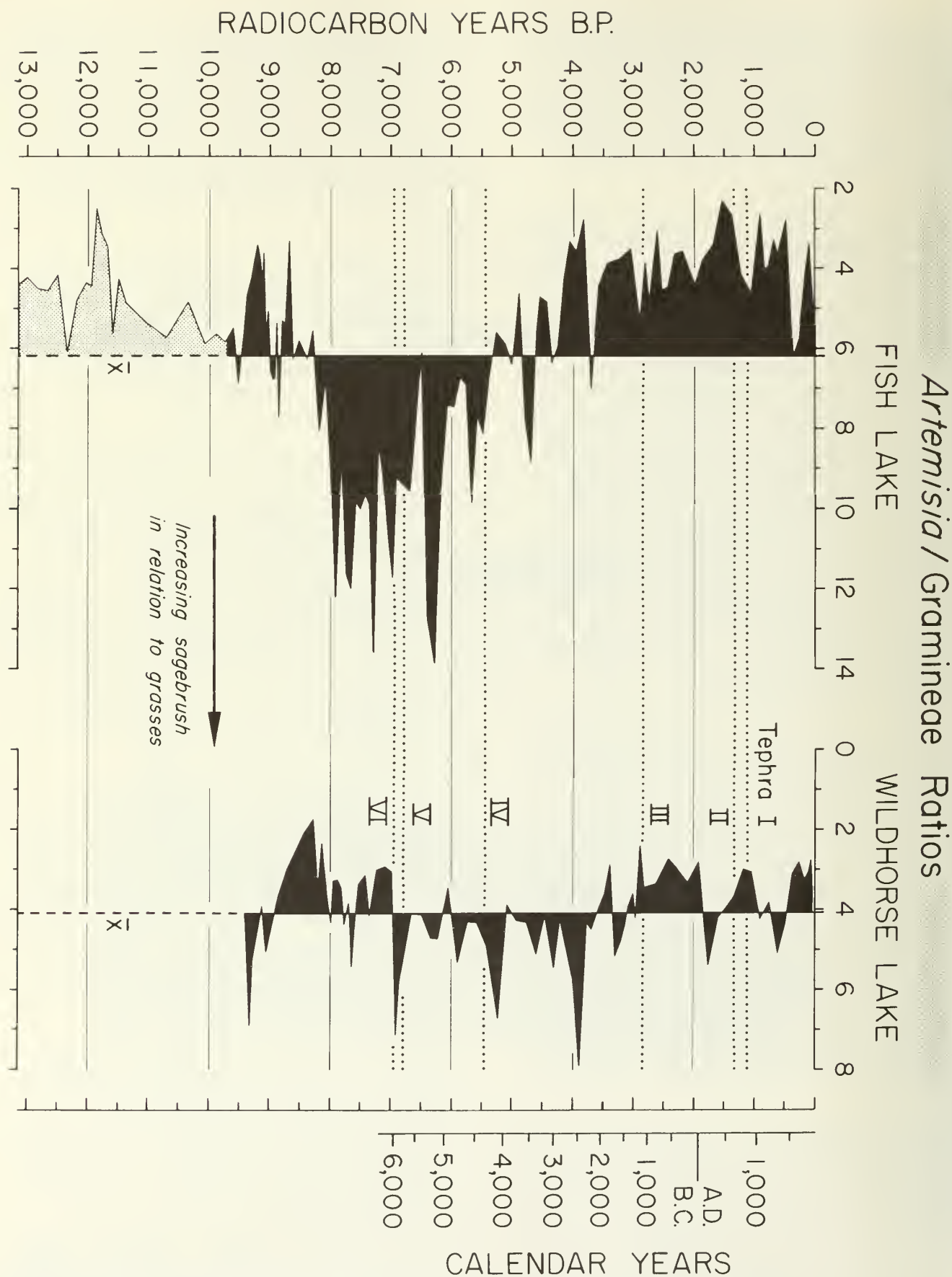


Fig. 2.22 Sagebrush/grass pollen ratios for Fish and Wildhorse lakes, Steens Mountain (courtesy Peter J. Mehringer, Jr.).

It is speculated that when the lake waters finally diminished enough in volume to concentrate toxic minerals to disastrously high levels, the lake biota which had supported the human population vanished, and people were forced to abandon the area.

Further research is clearly needed at Lake Abert, to seek additional evidence which can be used to scientifically test the speculations so far put forward, and to develop a more detailed account of the ancient lifeway practiced there.

The higher, better-watered country to the west of Lake Abert, as far as the crest of the Cascades, was occupied by the Klamath in historic times. Archaeological evidence suggests that their tenure there is ancient. Excavations at Kawumkan Springs Midden on the Sprague River show that a hunting/fishing/gathering lifeway like that of the historic people dates to at least 5000 BP there (Cressman 1956; Aikens and Minor 1978). Fish bones were present throughout the 4 to 5 feet of midden deposit, becoming more abundant in later times. The bones of birds and large mammals also occurred consistently, as did shell remains of river mussels. No plant remains were preserved, but milling stones, mortars, and pestles give evidence for the processing of seeds and roots. Technology also remained essentially stable. Of 15 categories of artifacts used in hunting, hide working, fishing, and root or seed grinding, 12 were represented from the bottom to the top of the archaeological deposit. In terms thus of both dietary economy and exploitative technology, the way of life practiced at Kawumkan Springs changed little over millennia.

Nightfire Island, on the edge of Lower Klamath Lake, lies in the territory of the closely related Modoc. Here a record of adaptation to the lakeshore environment spans a period from about 6000 to 1000 BP or later (Sampson 1985). Food bone refuse preserved in considerable abundance throughout the deep archaeological deposits shows that fishing and the taking of waterbirds had been important there throughout 5000 or so years of intermittent occupation. Between about 4300 and 3000 BP the site apparently served as a sedentary village, with clay-lined floors signifying the presence of substantial pithouses. Later, more lightly-built structures were utilized, perhaps as summer camping shelters. In the later part of its occupation too, the site inhabitants became involved in exchange with people to the west and south, a development which seems to presage the rather extensive trading network maintained by the Modoc and Klamath in early historic times.

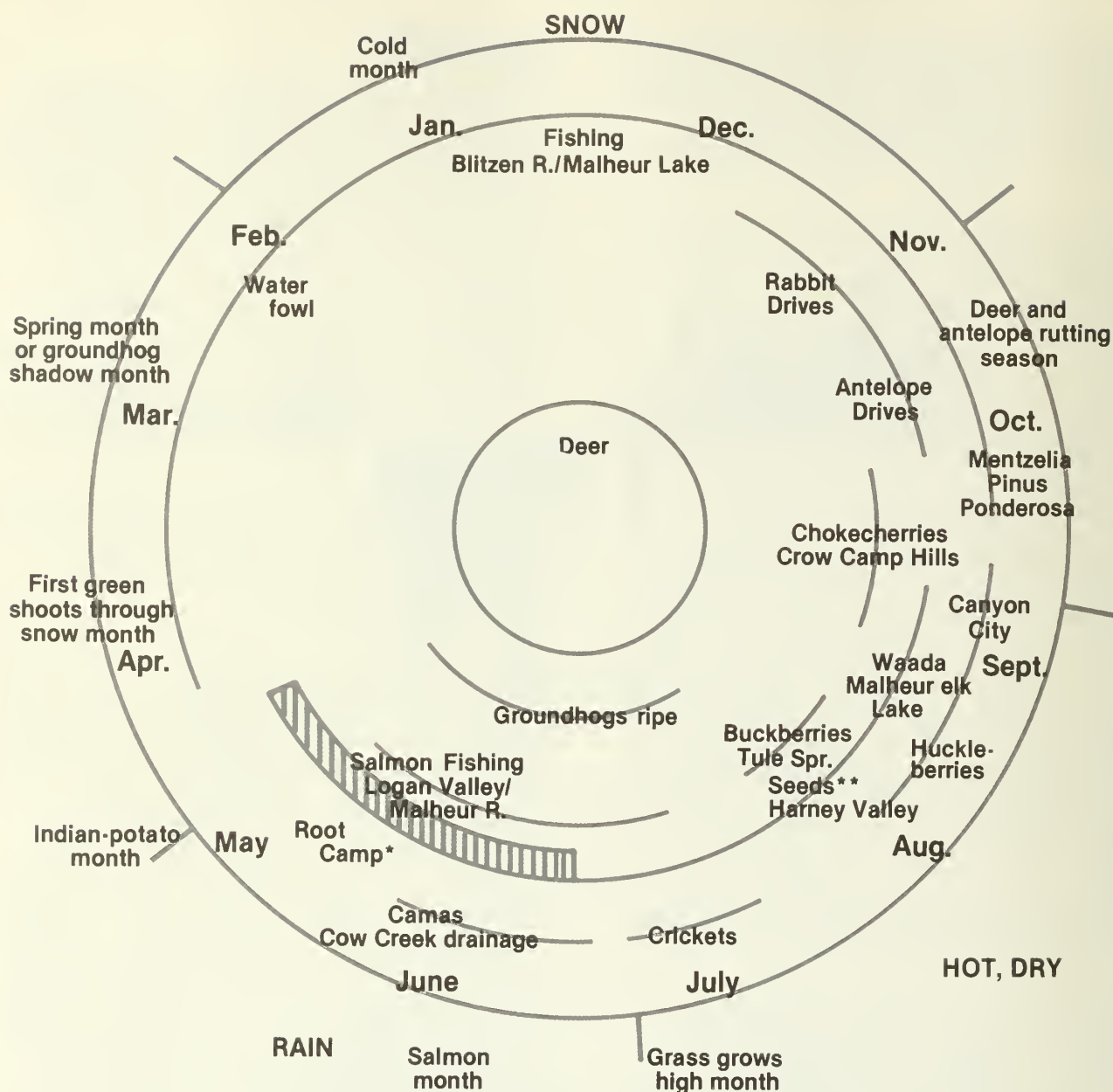
Life Style

The native people who occupied the Great Basin region in historic times were heirs to an extremely ancient cultural tradition (Aikens 1978, 1982, 1983b). Comparison of archaeological and ethnological evidence shows that the old ones and the historic people made tools, gathered plants, and hunted animals of similar if not identical kinds. The similarity is not exact, or complete, of course: in thousands of years there were inevitably changes. Nevertheless, the life of the historic peoples is a guide to understanding the ancient cultures attested by archaeological evidence, and historic and prehistoric may be interwoven to portray some of the more timeless aspects of the desert way of life.

Hunting-gathering people dependent on the free-living bounty of nature for their sustenance perform blend in to the natural patterns and cycles of their environment. The annual round of the historic Harney Valley Paiute people typifies the desert culture existence (Fig. 2.23).

March was the spring month when the groundhog first appeared. People were at this time still living in their winter encampments near Malheur Lake and the modern town of Burns, eating primarily stored foods and such game as could be obtained. April was the month when the first green shoots appeared through the snow; by late April or early May, the Indian-potato month had begun. This brought the first major economic and social event of the new year, the spring trek to the root camp. The root camp of the Harney Valley people was actually not a single locality but a vast area in the barren (to white man's eyes) hills around Stinkingwater Pass, on the northeastern rim of the Great Basin. There "Indian potatoes"—bitterroot, biscuitroot, cous, wild onion and other species—occurred in inexhaustible quantity in the rocky soils. People congregated in large groups, with some coming even from 50 or 100 miles away to participate in the harvest. Some remained at the root camp as long as a month or so, building up stores for the following winter and enjoying the company of friends and relatives from miles around. The gathering was intertribal, with non-Paiute groups from the Columbia Plateau region across the mountains also participating. Archaeological remains from Stinkingwater Pass suggest that this pattern probably dates back to at least 4000 BP (Pettigrew 1979).

While the root camp was still in full swing, the men moved on to the headwaters of the Malheur River, which, with its connections to the Columbia and to the Pacific, was a source of salmon. The men were joined by the women as they concluded their work at the root camp, and the task of catching and



Seasonal round. A wide range of local resources were utilized, including seeds, roots, berries, fish and game. The general pattern was one of intensive exploitation, probably by small family-based groups similar to those reported among the Owens Valley Paiute (Steward 1933) and the Surprise Valley Paiute (Kelly 1932), with larger groups coming together regularly at the root camp, salmon fishery and waada sites. Their calendar appears to have been organized taking the annual migration for food resources into consideration. The names of lunar months translate into a brief description of characteristic activities or seasonal conditions for each month. The annual migration was dependent upon the seasonality, availability and correct time for gathering species.

* Species collected include: *Calochortus macrocarpus*, *Lewisia rediviva*, *Camassia quamash*, *Lomatium cous*, *L. canbyi*, *L. gormanii*, *L. hendersoni*, *L. nudicaule*, *Perideridia bolanderi*, *P. gairdneri*, *Allium madidum*, *A. acuminatum*, *A. macrum*, *Fritillaria pudica*, *Trifolium macrocephalum*, *Mentha arvensis*, *Achillea millefolium*, and *Pentstemon speciosus*.

** Species collected include: *Wyethia amplexicaulis*, *Balsamorhiza hookeri*, *Sisymbrium altissimum*, *Atriplex* species, *Elymus cineris*, *Suaeda depressa*, *S. intermedia*, and *Oryzopsis hymenoides*.

Fig. 2.23 Harney Valley Paiute seasonal round. Based on Conture (1978); Conture, Housley, and Ricks (1982); Whiting (1950)

drying salmon for winter storage continued for several weeks. The time by now was late May-early June, the salmon month.

By about this time, the vast fields of purple camas lilies to be found at many places between Malheur Lake and the surrounding foothills had come into bloom. Their starchy white bulbs were harvested in great quantity and baked in large earth ovens for winter storage. Marmots were also "ripe" at this time and special trips to suitable localities were made to collect them. People moving back toward the Harney Valley from the root and salmon camps in the mountains conducted these harvests, and stored the proceeds of their busy season's labors in caches at selected places where they could be retrieved for winter use.

July was the month when the grass grew high. Crickets thrived, and were collected to be dried, pounded, and stored as a protein-rich food. The relatively rainy and cool spring gave way to the hot, dry summer. During July and early August, people dispersed into small groups, roving where they could hunt elk and small game, catch fish, and gather the first currants and huckleberries of the season.

In late August and September, the seeds and berries of a wide variety of plants were ready for harvest. The Harney Valley Paiute were called the **Wadatika**, or "Wada-eaters," being so named for a low-growing plant extremely common at places around the shore of Malheur Lake and other desert lakes. The wada plant yielded a seed that was tiny but available in large quantity. The **Wadatika** congregated in large groups to collect it as well as the seeds of goosefoot, Indian Ricegrass, Great Basin Wildrye, mule-ear and other desert plants. At suitable locations buckberries, huckleberries, and chokecherries were also harvested, and the elk hunted.

October-November was the rutting season of the deer and antelope. Deer hunts, antelope drives, and rabbit drives were conducted at this time. Seeds of the shooting star and ponderosa pine were collected. Winter encampments were established at traditional places which were near water and not too far from previously established food caches.

The cold months of the year, from December through April, were spent in winter encampments from which people ranged out for fishing, waterfowling, and hunting. The stores of dried food built up during the preceding months constituted the primary food resource at this season.

The day-to-day tasks and wide-ranging pattern of life implied by this summary of the historic Harney Valley Paiute year are well-represented by artifacts

from the ancient sites earlier described. Gathering activities are attested by digging sticks, carrying baskets, and milling stones; hunting is represented by the atlatl and dart, the bow and arrow, stone projectile points, and stone knives and scrapers; and extensive travel is symbolized by the rich finds of sagebrush-bark sandals from Fort Rock Cave and other sites. The Connley Caves, the Catlow Valley caves, Dirty Shame Rockshelter, and the Lake Abert sites quite probably served as winter encampments, returned to year after year as attested by their deep and rich deposits. Hundreds of other sites known to exist throughout the Great Basin portion of Oregon but not yet investigated no doubt include special activity camps of various kinds and additional winter villages. That in many respects the lifeway of Oregon desert peoples who lived as much as 10,000 years ago resembled that of the Harney Valley Paiute, this evidence leaves no doubt.

Problems

The above assessment reflects the current state of archaeological knowledge. The amount of information now available on the prehistoric cultures is far less than could be desired, and many questions remain. It is easier, on scant evidence, to describe the similarities between ancient and recent lifeways than it is to describe the differences. In the sphere of plant and animal resources, and in the sphere of tools and artifacts used to exploit those resources, the evidence now in hand is quite eloquent. It speaks of strong continuity over time in ancient traditions of hunting, gathering, and manufacturing. Basic tools and tasks did not change greatly in 10,000 years, as concrete artifacts and biotic remains directly attest.

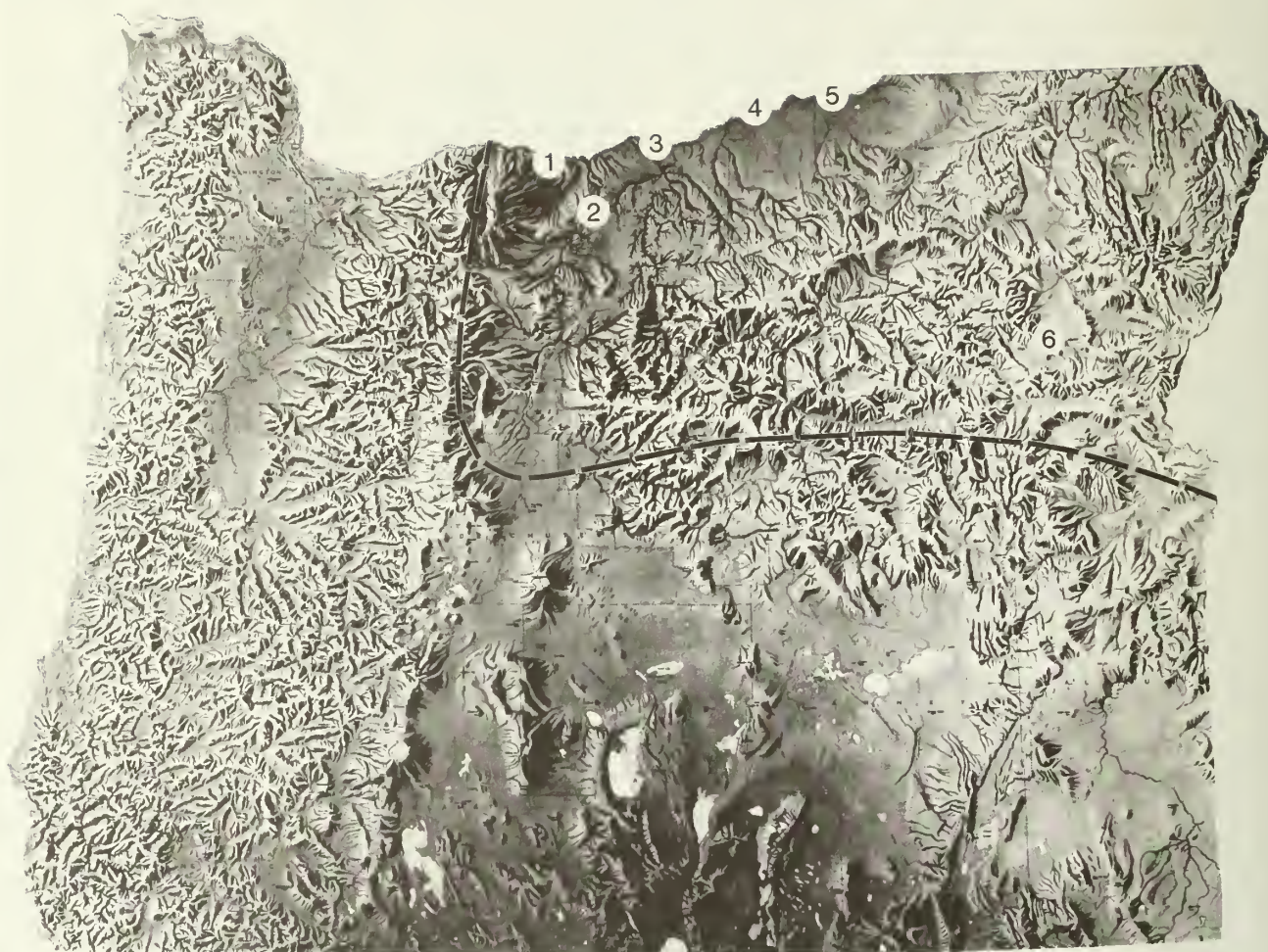
But much less can be said with conviction about the societal sphere. Conclusions about the size and organization of groups, the distribution of their settlements over the landscape, their relative degree of sedentism or mobility, and possible changes in these dimensions over time as environments changed or other historical factors came into play, can only be advanced from much larger bodies of data than are currently available. To be sure, current evidence offers important clues: the long periods of abandonment at both the Connley Caves and Dirty Shame Rockshelter correlate with intervals of increased aridity, and the settlements at Lake Abert seem very likely to have been affected by climatically induced changes in the lake level. It is not clear, however, how these changes were compensated for by the societies then living in the region, beyond the fact that they were forced to abandon certain localities. Whether people adjusted by taking up a more dispersed and mobile pattern of movement, whether they did it by

concentrating themselves more densely in remaining favorable localities, or whether they coped by reducing their numbers either through population control or migration entirely out of the region, are all possibilities to be explored. The Steens Mountain Prehistory Project is one attempt to address questions of this kind, but further study will surely be required in any case, to evaluate and extend its conclusions.

Finally, there is also the matter of simple, sheer discovery: further work will unquestionably bring to light new and exciting facts, and pose new questions that are not yet even conceived of.



Fig. 2.24 Father of Oregon Archaeology. Dr. Luther S. Cressman, shown here at Fort Rock in 1970 leading a band of students and colleagues from the Great Basin Anthropological Conference, initiated the study of Oregon archaeology in the early 1930's. Although his most famous work was in the Great Basin portion of the state, Dr. Cressman carried out pioneering research all over Oregon. He laid the foundations of our current understanding during an archaeological career spanning some 50 years, and continues to be active as a scholar.



Key to Sites

- 1-The Dalles
- 2-Mack Canyon
- 3-Wildcat Canyon
- 4-Alderdale
- 5-Umatilla Rapids
- 6-Stockhoff

Fig. 3.1 Map of Columbia Plateau region of Oregon showing site locations.

Chapter 3

Columbia Plateau

Aboriginal life in the Columbia Plateau was focused on the great river that gives the region its name (Fig. 3.1). The Columbia River forms the northern boundary of the state of Oregon, except in the far northeast. The Oregon side of the river, east of the Cascade Range, was occupied in historic times by the Wasco, Tenino, Wyam, Umatilla, Cayuse, and Nez Perce, whose salmon-fishing, root-gathering, and hunting way of life typified that of the Plateau as a whole. Archaeological excavations at The Dalles of the Columbia River show that salmon fishing was already flourishing there 10,000 years ago, and that some elements, at least, of the historic way of life were even then in place.

Time and Environmental Change

The Columbia River and its upper tributaries drain the vast snowfields of the Northern Rocky Mountains. At times during the late glacial age, catastrophic floods of almost inconceivable magnitude boomed down the Columbia, as Glacial Lake Missoula in the Montana Rockies periodically breached the dam of glacial ice which contained it, and released up to 500 cubic miles of water. This incredible flooding eroded the Channelled Scablands of northeastern Washington, backed up the Snake River canyon for many miles above its confluence with the Columbia, and carried large boulders rafted in chunks of glacial ice almost to

Eugene, Oregon, where a huge surge of water was driven up the low-lying Willamette Valley for more than 100 miles to the south of the Columbia's main channel near Portland (Baldwin 1976).

These events have been variously called the Spokane Flood, the Missoula Flood, and the Scabland Floods. It is now known that there was not just one such event, as some of the popular terms imply, but several. The most recent of these floods is now believed, from geological evidence discovered on the Lower Snake River, to have occurred some time after 13,000 BP (Hammatt 1977). Silt and sand deposits lying 500 feet above the historic level of the Snake River were found to contain cobbles with fresh glacial striations, which were obviously derived from a glaciated area. Two ^{14}C dates, one of 14,000 BP and one of 13,000 BP, were obtained from sediments which stratigraphically underlay the flood deposits, showing that the flood event which left them so high above the historic water level was much more recent than previously thought.

These dates have important implications for our understanding of human prehistory along the Columbia River. Firstly, if people were there prior to 13,000 years ago, it is probable that little or no archaeological evidence of their presence could have survived. Secondly, the catastrophic fluvial restructuring of the Columbia canyon that is implied would have left a raw alluvial topography that might have taken considerable time to mature into a suitable human habitat.

The geological sequence on the Lower Snake River indicates that sands and silts began accumulating on the old flood surfaces soon after 10,000 BP. A period of geological stability followed, between about 8000 BP and 5000 BP. During this interval, volcanic ash from the 7000 BP eruption of Mount Mazama fell and was preserved in places as part of the geological record. Between 5000 and 4000 BP another episode of erosion occurred (minor in comparison with what had taken place earlier, but still of considerable significance), followed by renewed deposition and the establishment of another period of relative geological stability that has lasted from about 2500 BP until the present. Evidence from the Rocky Reach of the upper Columbia suggests at least four alluvial episodes there, during which the base level of the river rose and fell (Mierendorf 1983). Comparable geological study has not been carried out along the Oregon section of the Columbia, but the essentials of this picture are perhaps applicable to it as well, since it lies downstream of both the Rocky Reach and the Columbia-Snake confluence and would have been subject to the same general runoff regime.

Climatic conditions in the Plateau paralleled the sequence previously outlined for the Great Basin, with warming and drying after the end of the glacial age reaching a peak between about 7000 and 4000 BP, and subsequent climatic amelioration establishing conditions roughly like those of the present after about 4000 BP. These geological and climatic changes obviously would have been important to people living along the river, and as will be seen, interpretations of Plateau prehistory must take them into account.

Environment and Human Settlement

The Columbia River along much of Oregon's border flows in a deep canyon incised several hundred feet into the Columbia Basalts that form the surrounding uplands. The canyon is broad, over a mile wide in places. Human settlement is now, and was in the past, concentrated on alluvial terraces or benches within the canyon, remnants of an ancient floodplain of the Columbia through which the river has cut to reach its modern level. South of the river is the Deschutes-Umatilla Plateau, an almost level landscape which slopes upward from an elevation of about 300 feet along the Columbia to a height of about 3000 feet along its southern edge 50 miles or so inland. The area is drained by three major rivers, the Deschutes, the John Day, and the Umatilla, all of which flow into the Columbia. The Blue Mountains lie behind the Deschutes-Umatilla Plateau to the south and east. Topographically this is the most diverse region in Oregon; elevations range from 300 to over 9000 feet, and landforms

include rugged mountains, alluvial basins, deep canyons, and dissected plateaus. Bounding the area on the east is Hell's Canyon, a series of narrow rocky gorges deeply incised by the Snake River.

Local climates over the Oregon portion of the Columbia Plateau vary markedly. Along the Columbia River itself, where elevations do not exceed a few hundred feet, the climate is warmer and dryer than that of any other part of Oregon. Summers are hot, winters cold, and precipitation very limited the year around. The Deschutes-Umatilla Plateau is also subject to hot summers and cold winters, but the extremes are not as great as along the Columbia, and precipitation is significantly higher, though the region remains a dry one. The altitudinally varied Blue Mountains province has correspondingly varied temperature and moisture regimes, with lower elevations being more or less comparable to the Deschutes-Umatilla Plateau, and higher elevations being significantly cooler and moister the year around. During winter, extensive snowpacks accumulate in the mountainous highlands.

Cultural Chronology and Time Markers

Different projectile point styles mark sequent periods in Plateau prehistory. The diagnostic types and their dates are closely similar to those recorded in the previous chapter for the Great Basin. In some cases the types are identical, and the same names are used. In other cases, regional specialists have given different names to highly similar if not completely identical types; where this has happened, both names will be given in the account below.

Spear points of the Clovis fluted type found near The Dalles (Strong 1969) may be the earliest present evidence of human activity along the Columbia River in Oregon, if their age corresponds (as it should) to the 11,500-11,000 BP time range established elsewhere for the type. A flaked stone that may have been a chopping tool, collected from a gravel deposit some 200 feet above water level near the point where the John Day River enters the Columbia, may be evidence of even earlier human presence (Cressman et al. 1960; Cressman 1977).

A series of cultural phases has been defined for the Lower Snake River region, which is broadly applicable to the Columbia Plateau as a whole (Leonhardy and Rice 1970; Leonhardy 1975). The Windust Phase, 10,000-8,000 BP, is characterized by the Windust point type, and by large unnamed lanceolate points. The Cascade Phase, 8,000-4,500 BP, is characterized by the Cascade and Northern



Fig. 3.2 Projectile points of the Early period from the Columbia Plateau region, Oregon. Top row: Windust points; Bottom row: Windust point (left), Cascade Willowleaf (center), lanceolate (right).



Fig. 3.3 Projectile points of the early Middle period from the Columbia Plateau region, Oregon. Top row: Northern Side-notched; bottom row: Cascade Willowleaf.



Fig. 3.4 Projectile points of the late Middle period from the Columbia Plateau region, Oregon. Top row: basal-notched; Middle row: corner-notched; Bottom row: side-notched and stemmed.



Fig. 3.5 Projectile points of the Late period from the Columbia Plateau region, Oregon.

Side-notched types. The Tucannon Phase, 4500-2500 BP, is characterized by triangular points with contracting stems, and triangular points with side-notches or corner notches that correspond roughly to the Pinto and Elko types respectively, of the Great Basin sequence. The earlier part of the Harder Phase, 2500-700 BP, is characterized by Snake River Corner-notched points, large basal-notched points, and small basal-notched points that correspond respectively to the Elko, Eastgate, and Rose Spring series of the Great Basin sequence. The end of the sequence is represented by the later part of the Harder Phase, 700-100 BP, characterized by Columbia Valley Corner-notched and Wallula Rectangular Stemmed types, which are reminiscent of, though clearly different from, the Rose Spring series of the Great Basin. A representative set of diagnostic types for the Columbia Plateau portion of Oregon is presented in Figs. 3.2-3.5.

As elsewhere, the sequence of point types for the Columbia Plateau reflects the history of projectile weapons in the region. The large Clovis and Windust points were probably used to tip thrusting spears, while the somewhat smaller Cascade, Northern Side-notched, and Snake River Corner-notched types were used to tip small, light javelins or darts that were hurled with the aid of a spearthrower or atlatl. Very small, light projectile points reflecting use of the bow and arrow appear latest in the sequence, first appearing while dart points were still common, then becoming the dominant form as the atlatl and dart passed out of use.

Also notable is the fact that projectile points of the early period seem to share the greatest degree of similarity with types from the Great Basin portion of Oregon, while those from the later period, and particularly the last 700 years, became increasingly distinctive in nuances of style. The increasing individuality over time of such cultural products of the two regions may reflect the increasing maturity of both traditions, and perhaps a strengthening of the people's consciousness of differences between themselves and their neighbors.

Major Sites

The Roadcut Site at Five Mile Rapids on the Columbia River records over 10,000 years of human occupation at a spot that was, in early historic times, the greatest fishery and trading center in the Northwest. Five Mile Rapids, or as Lewis and Clark called it, the Long Narrows of the Columbia, lies about five miles upriver from the modern town of The Dalles, Oregon. The area referred to by early French-Canadian voyageurs as The Dalles includes the low, horseshoe-shaped Celilo Falls at the upriver end, a long narrow chute of white water just

below it that constricted the flow of the half-mile wide Columbia into a channel some 200 feet across and about 1-1/4 miles long (the Long Narrows), and the Big Eddy at the downstream end of the chute. This locality concentrated the salmon which ran up the river, and offered places from which huge quantities could be taken with dispatch (Fig. 3.6).

Archaeological excavations into the side of a roadcut which had been made during the construction of US Highway 30 sampled a deep deposit rich in cultural remains. From a level near the base of the deposit was obtained a ¹⁴C date of 9800 BP, and the excavators suggest that initial occupation began at least 11,000 years ago (Cressman et al. 1960). The very earliest remains were sparse, consisting of a few large parallel-sided flaked stone blades reminiscent of those found in Advanced Paleolithic sites in Eurasia, some flaked stone scrapers, and a few worked bone pieces.

The Full Early period, ¹⁴C dated between about 9800 and 7900 BP at the Roadcut Site, can be characterized from a much more complete array of evidence. Most important is the great quantity of salmon vertebrae found (Fig. 3.7). Some 125,000 individual bones were counted, which represented roughly half the amount observed during excavation. Bones of rabbit, beaver, otter, muskrat, marmot, and badger were also recovered, as well as remains of fox and raptorial birds. Projectile points included the Windust type and large leaf-shaped forms. Heavy choppers made on large flakes, ovate biface knives, stone graving tools or burins, pebbles with grooves incised around their middles that may have been net sinkers or perhaps bolas stones, edge-ground cobbles, and worked bone and antler pieces were also part of the cultural inventory (Figs. 3.8, 3.9). The Full Early period at The Dalles corresponds to the Windust Phase of the Lower Snake River region in southeastern Washington, which is there dated between 10,000 and 8,000 BP.

The record of human occupation at the Roadcut Site between 7900 and 6100 BP is scanty. This time was represented by a tough, cemented layer of earth from which some choppers and scrapers, and a few projectile points were recovered. From deposits dated after 6100 BP were found projectile points of types which on the Lower Snake River represent a series of cultural periods: the Cascade phase, 8000-4500 BP; the Tucannon phase, 4500-2500 BP; and the long-lived, but internally subdivided Harder phase, 2500-100 BP. From this it appears that human use of the Roadcut Site was more or less continuous throughout the last ten millennia, though the intensity of occupation may have varied over time (Figs. 3.10-3.12). The record for about the last 2500 years was quite rich, with evidence of artistic and craft developments. Small



Fig. 3.6 Long Narrows at The Dalles of the Columbia River.

Fig. 3.7 Salmon vertebra from the Roadcut Site at The Dalles.



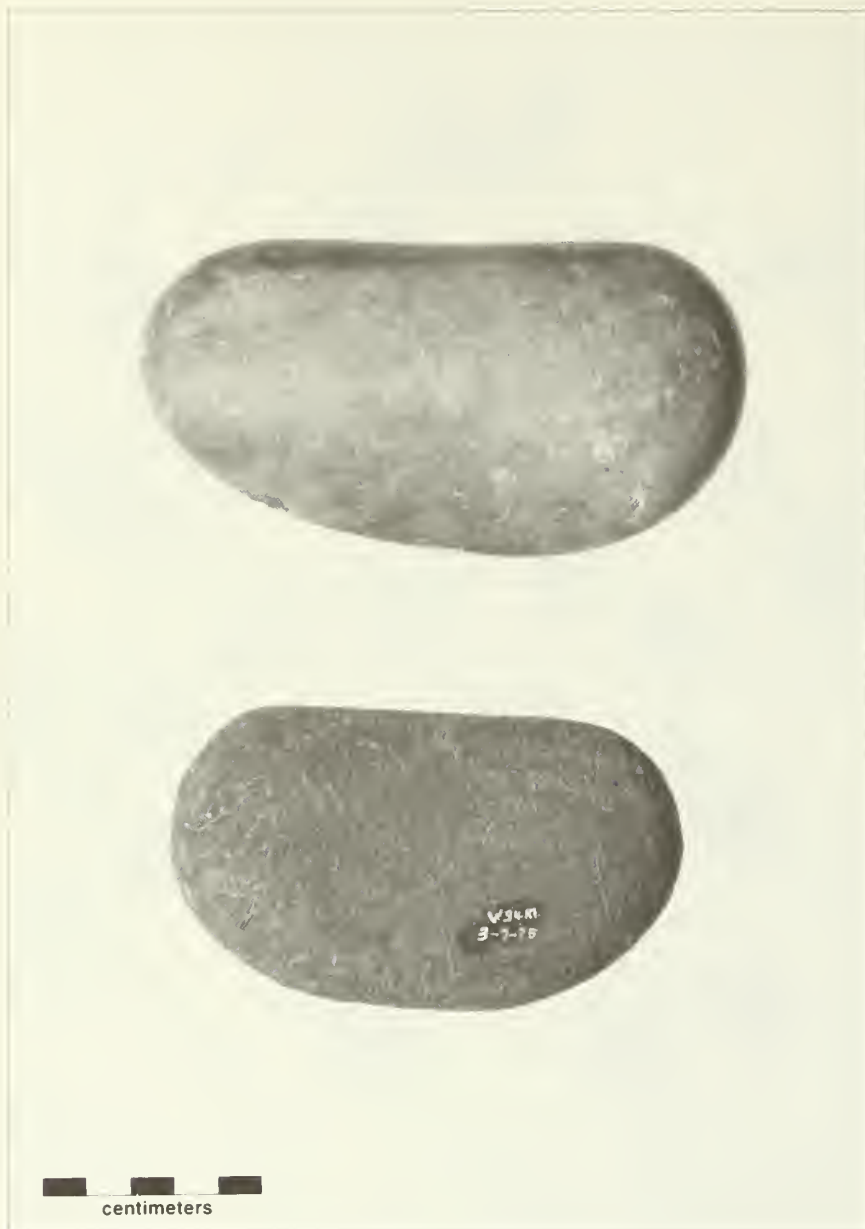
stone sculptures, mortars and pestles with carved ornamental designs, carved bone, nicely shaped charm stones, and ornamental beads of bone and stone, illustrate social and ceremonial aspects of the life way, which seem to have grown in intensity during the later period of the site's occupation (Figs. 3.13-3.16).

Copper and glass beads, iron knives, hatchets, fish hooks, firearms, and gunflints from the Roadcut Site attest the introduction of Euro-American goods into the region during the late 1700s (Figs. 3.17-3.19). When Lewis and Clark arrived at The Dalles in October, 1805, and called at an Indian village of about 20 houses on the Washington side of the Columbia near the head of the Long Narrows, Euro-American goods had already been introduced into the region via native trade routes. These items had

come from sources farther east and farther west; white traders had long been established east of the Rockies, and some goods had been brought to the northwest coast by Spanish, English, or American sailing ships, whence they were traded inland through native networks.

A cultural sequence of comparable length was discovered at the Wildcat Canyon site, on the south bank of the Columbia several miles above the confluence of the John Day River with the main stream, about 30 miles above The Dalles. The site is on a terrace at the base of high basalt cliffs, overlooking the Columbia River. Traces of occupation were found over an area several hundred feet across, and excavations were initiated at several promising spots (Cole 1968; Dumond and Minor 1983).

Fig. 3.8 Edge-ground cobbles of the Early period from The Dalles. Note flattened upper edges.



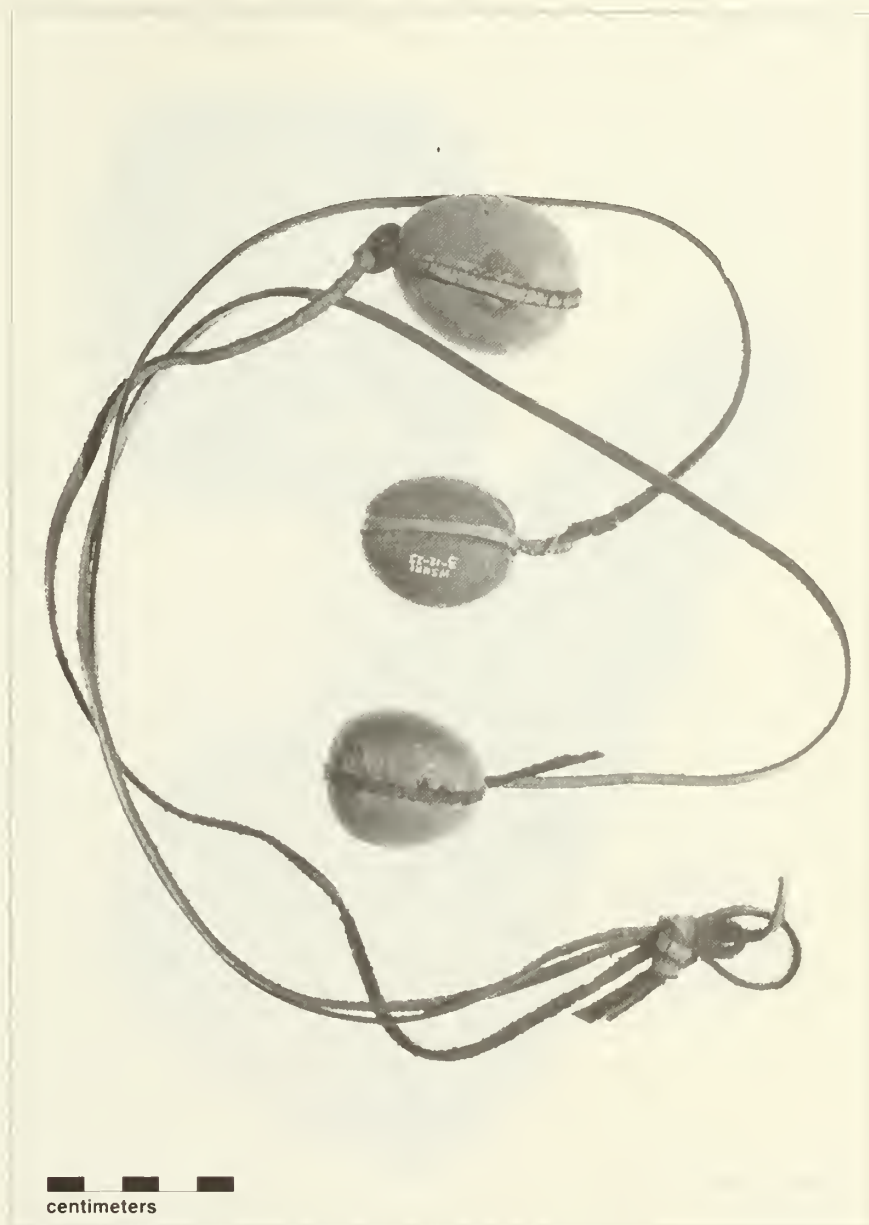
The earliest cultural remains at the site are of the Philippi Phase, 9000-7500 BP. This phase relates closely to the Full Early period at The Dalles, and the Windust Phase of the lower Snake. Large lanceolate, leaf-shaped and stemmed points, and large scrapers and knives are evidence of hunting, while occasional milling stones and manos indicate the grinding of vegetal foods. A few living surfaces have been discovered, but no structures, implying that at this time Wildcat Canyon was only occasionally used, and then as a short-term camping site.

After an apparent hiatus of about 1000 years, the site was again occupied during the Canyon Phase, 6500-5000 BP. The diagnostic artifacts—most notably Cascade and Northern Side-notched projectile points—demonstrate an equivalency with

the Cascade Phase of the Lower Snake River sequence. Eight deep, narrow shafts dug in the site by the aboriginal inhabitants are the most interesting features of this occupation. When cleared in archaeological excavation the shafts filled with water, leading to the interpretation that they were ancient wells, dug perhaps as the flow of Wildcat Creek became increasingly intermittent during the relative warmth and dryness of mid-Holocene times.

Heaviest occupation occurred during the Wildcat Phase, 2500-1000 BP. Large corner-notched projectile points for use with the atlatl and dart dominated early, with small pin-stemmed arrowpoints later becoming predominant. It was apparently during this phase, thus, that the bow and arrow replaced the more ancient atlatl and dart.

Fig. 3.9 Grooved pebbles from The Dalles. Possibly used as bolas weights, as shown.



Other artifacts, which correspond well to those of the equivalent time period at The Dalles, and of the Harder Phase on the Lower Snake, include mortars and pestles, milling stones, mauls, flaked stone bifaces, knives, scrapers, choppers, drills, gravers, and netsinkers. Bone awls and toggling harpoon heads of both one-piece and composite types were also represented. In short, the specimens comprise a domestic inventory of household tools for a variety of tasks relating to food-getting and preparation, as well as the manufacture of leather, wood, and textile items which were not themselves preserved in the moist deposits of the site (Figs. 3.20-3.24). Exotic and artistic items included beads of *Dentalium* shell brought in from the Pacific coast, bone and shell beads and pendants, and ochre or other pigment stones.

Evidence of the Wildcat Phase people's diet is given by the remains of a number of different species. Fish bones included those of chinook salmon, steelhead trout, bridgelip sucker, largescale sucker, mountain sucker, chiselmouth, northern squawfish, and peamouth. This variety suggests that people were exploiting all major habitats of the river by various angling methods. Shell of the freshwater mussel indicates the collection of that riverine species as well. Deer and bighorn sheep were best-represented among the larger animals, but elk, goat, and bison were also present. Jackrabbit was predominant among the smaller forms, which also included a miscellany of small rodents and birds. Vegetal remains were not recovered, but the artifact assemblage, as noted above, included a significant number of pestles and hopper mortars, of types which were used in historic times to pound the

Fig. 3.10 Handled maul and grooved maul head from The Dalles.



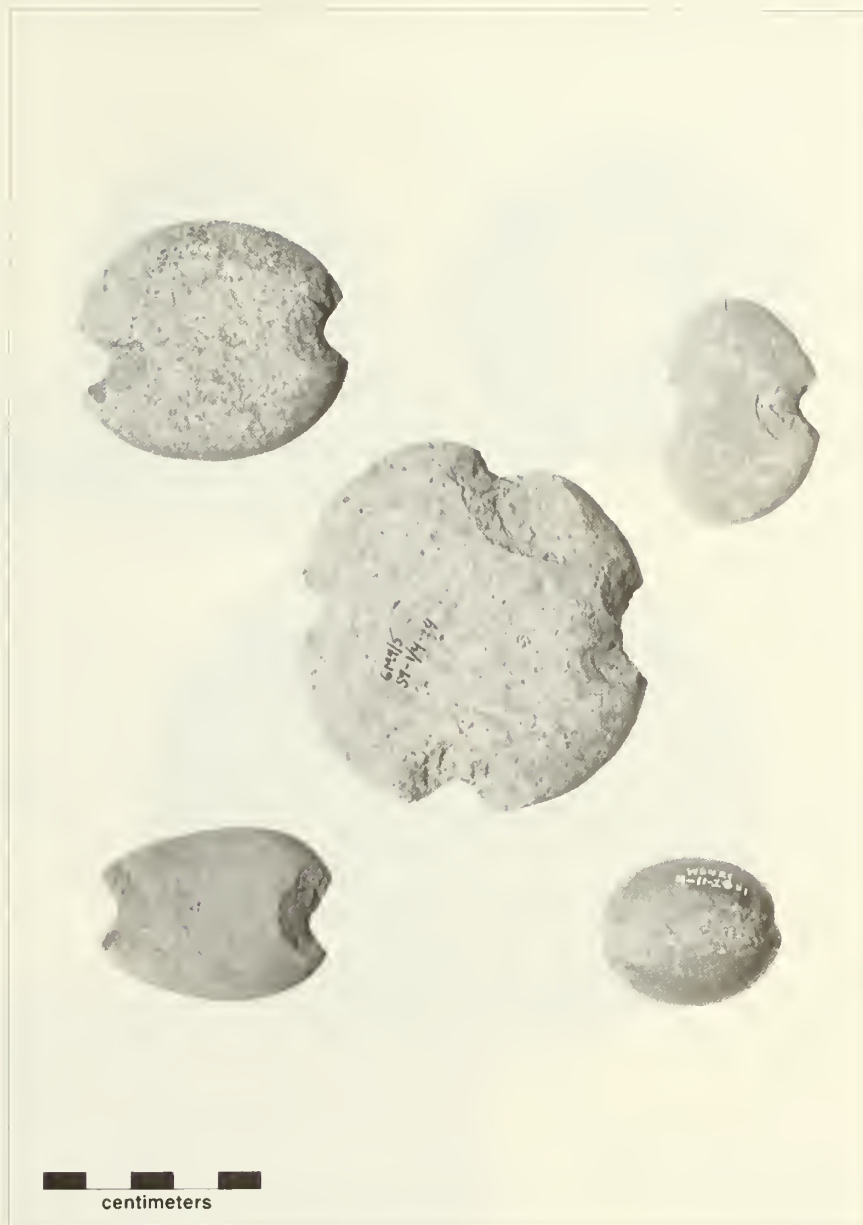
roots of camas and other plants into meal. The traditional Plateau diet of fish, roots, and game was thus well established at least by the time of the Wildcat Phase.

Living floors, charred timbers, and other indicators show that people of the Wildcat Phase lived in roughly circular houses which had floors scooped out of the earth and timbered superstructures probably covered with mats, brush, or earth. Inside, a hearth that was either encircled with stones or simply laid on the floor would have provided heat and light, and pits dug into the floors apparently served as footings for posts supporting the house superstructure. A reasonably complete floor outline of one such building suggests that these dwellings were roughly 20 to 25 feet in diameter. The more substantial of these structures were no doubt

semisubterranean earth lodges of a type which historically served as winter dwellings. Indications of more lightly built lodges, perhaps of teepee-like construction, suggest that summer habitations were also in use.

It thus appears that a year-round village may have been established at the site during the Wildcat Phase, if the remains are interpreted to suggest that people moved out of their earthlodges into lighter, more airy structures during summer, as many historic Plateau folk did. It is not clear how many households may have comprised the settlement at any one time, but it is evident, from the overlapping of structural remains in excavated portions of the site, that houses were built and rebuilt in essentially the same places over a considerable period. From a separate cemetery nearby was recorded evidence

Fig. 3.11 Notched and girdled stones from The Dalles and Wildcat Canyon



of over 80 human burials, another indicator of long-continued occupation.

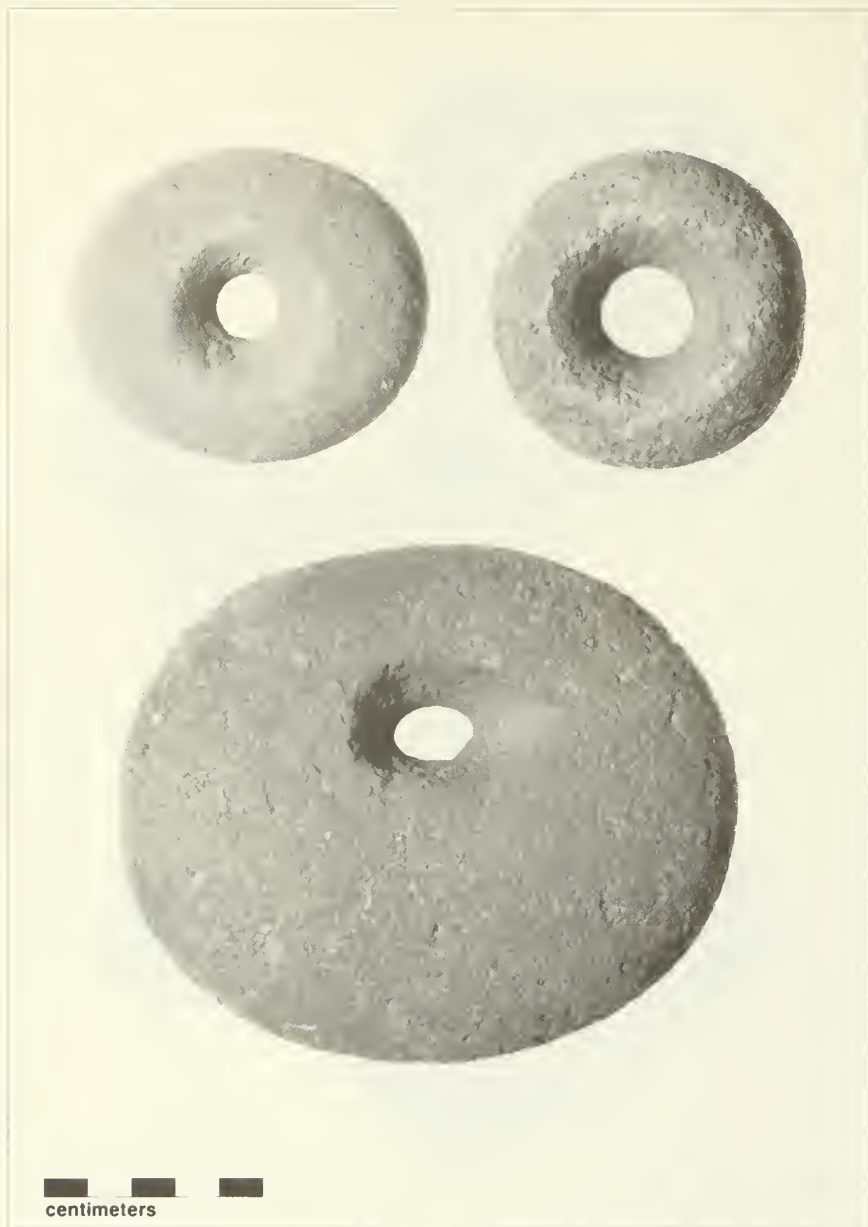
The Quinton Phase, 1000 BP to historic times, is represented by a shallow, disturbed component which seems to lack semisubterranean winter houses; at this period, the site may have been a summer encampment only. Further, the predominance of a distinctive pin-stem projectile point type suggests that during this interval the main contacts of the site's occupants seem to have shifted downriver, towards the west, whereas in all earlier periods they had been oriented upriver, to the east and north.

At the Umatilla Rapids on the Columbia about 60 miles above Wildcat Canyon was another long-occupied site. A village with "a great number of

lodges" was noted on the Washington shore of the river below the two mile-long rapids when the Lewis and Clark party passed through in the fall of 1805; when the expedition returned upriver in the spring of 1806, an even larger aggregation of some 50 lodges and an estimated 700 people were encamped there awaiting the spring salmon run. A historic village established on the Oregon side where the Umatilla River entered the Columbia preceded the modern town of Umatilla, and was the latest of a series of native occupations there that are traceable deep into prehistoric times (Schalk 1980).

Archaeological remains occur on both sides of the Umatilla River mouth, extending along the Oregon shore of the Columbia for over 1-1/4 miles, and inland for about a quarter-mile. Deposits containing

Fig. 3.12 Biconically perforated stones from The Dalles.

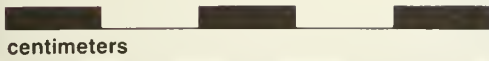


artifacts, bones, and other occupational remains, sometimes in dense concentrations, reach depths of 5 to 10 feet in places. The earliest of these remains, found beneath a layer of volcanic ash from Mount Mazama, establish human presence there before 7000 BP, but ^{14}C dates place the major occupation between 3600 and 200 BP. Most of these dates pertain to a deposit from which a number of house floors were identified, establishing that the historic village observed by Lewis and Clark had truly ancient roots.

The remains of over 30 houses—surely a tiny fraction of the total contained in the site—have been identified. The earliest structures were predominantly circular, with deeply excavated floors and raised benches encircling the base of the housepit wall. Firehearth were present, and interior

storage pits were common. Houses found stratigraphically above units of this type were also circular, but had floors only shallowly excavated into the earth, and lacked benches and storage pits. In addition to these finds, firehearths and storage pits which could not be positively related to well-defined house structures were extremely numerous, contributing to an impression of intensive occupation over a long period of time. More deeply buried deposits which have not been dated contain artifacts but apparently no dwelling structures, suggesting that perhaps the earliest use of the locality was ephemeral, less sedentary than later occupations became.

A cemetery area, from which over 230 burials were identified by the Mid-Columbia Archaeological Society and the University of Idaho, occurred not



centimeters

Fig. 3.13 Fish effigy of ground stone from The Dalles.



centimeters

Fig. 3.14 Anthropomorphic stone pipe bowl from The Dalles.



centimeters

Fig. 3.15 Stone club from The Dalles.

Fig. 3.16 Polished jadeite celt from The Dalles.



far from the mouth of the Umatilla River. Projectile point types associated with the burials suggest that this cemetery dates between about 2500 and 250 BP, making it essentially the same age as the dwelling remains, and giving additional evidence of the relatively permanent, sedentary character of the occupation.

The animal species represented by bones collected at the site suggest that the human occupants' diet drew on the resources of both the river and its hinterlands. Salmon vertebrae attest of course the principal product of the fishery at Umatilla Rapids. The bones of deer, elk, bighorn sheep, and antelope indicate hunting in the uplands behind the site, while jackrabbit and cottontail could have been taken in the near vicinity. An ethnographic account, based on the testimony of native informants rather

than on archaeological data, describes the attraction of the Umatilla site in terms that fit well the archaeological evidence:

Both sides of the mouth of the Umatilla River were occupied by this important winter village. It was the center of an important berrying and root gathering territory as well as the site of salmon fishing operations. Trails led from here to the mountains where elk, antelope, and deer were hunted. Also, grazing lands for horses were available and much horse breeding was done. In native words, "This was a good place to live" (Ray 1936:150).

The technology of the Umatilla site inhabitants cannot yet be described in detail. Excavations by the Mid-Columbia Archaeological Society are said

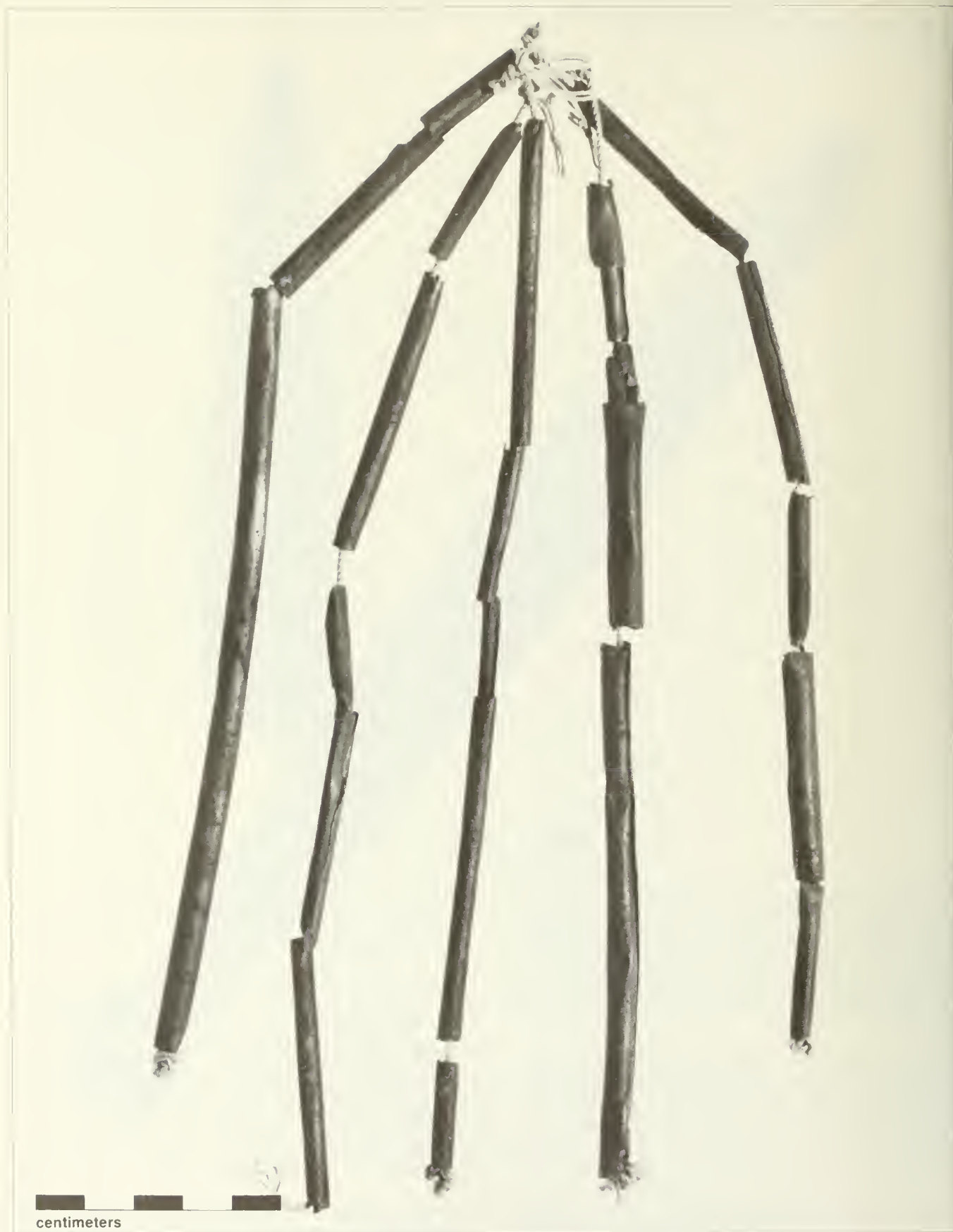


Fig. 3.17 Tubular copper beads from the Middle Columbia (historic).



Fig. 3.18 Upper, shell disc beads; middle, glass trade beads; lower, aboriginal **Dentalium** and glass trade beads; lower right, abalone pendant.



Fig. 3.19 Historic metal artifacts from The Dalles. Left, phoenix buttons; center, Chinese coin; right, military uniform buttons.



Fig. 3.20 Large biface knives from Wildcat Canyon.

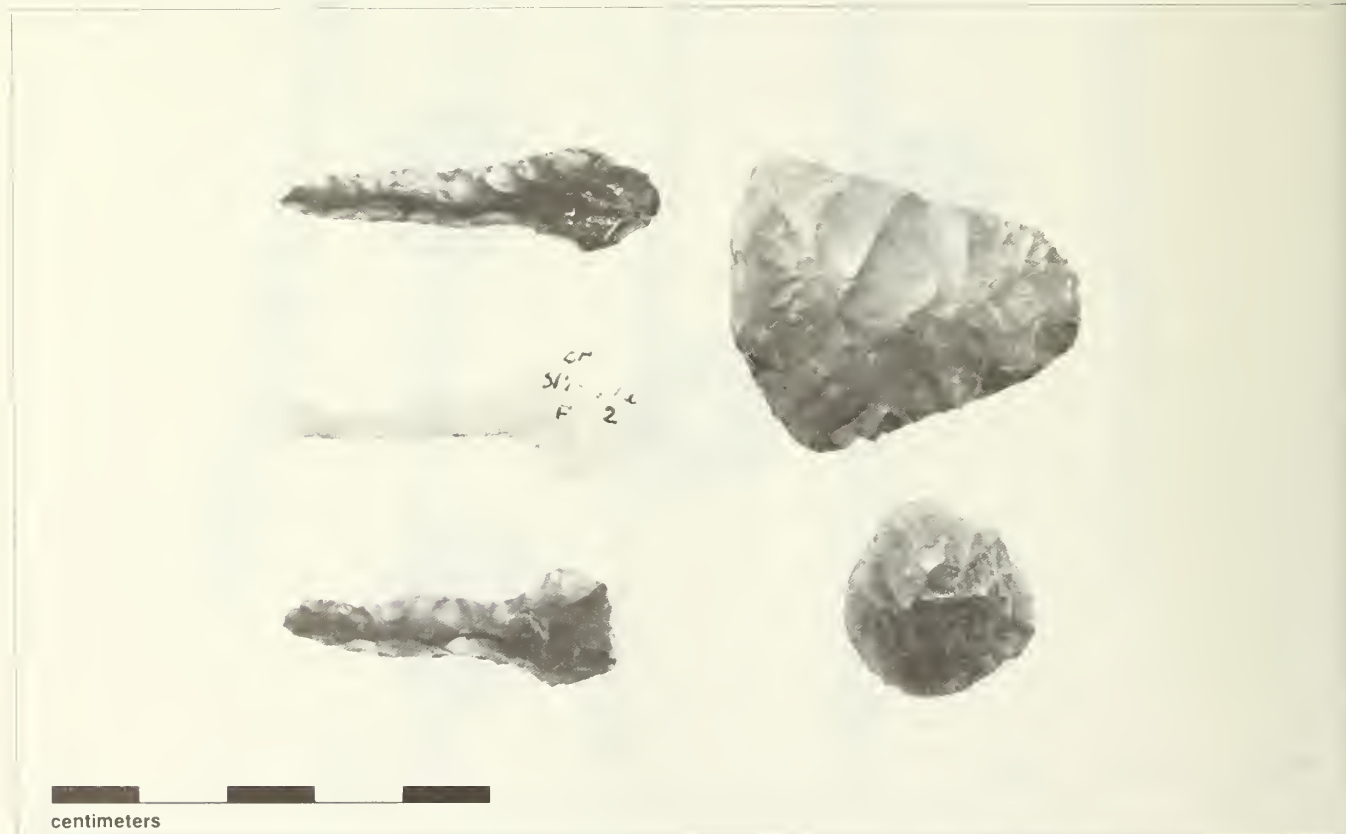


Fig. 3.21 Drills (left) and endscrapers (right) from the Middle and Late periods, Wildcat Canyon.

Fig. 3.22 Single-bitted graver, double-bitted graver, and scraper of the Early period from Wildcat Canyon.



to have recovered some 36,000 prehistoric items, and other research has produced additional specimens. Detailed accounts of this wealth of material will be of great interest when they appear, but at present all that can be said is that the general range of specimens apparently resembles that from the later levels of the Roadcut and Wildcat Canyon sites, giving evidence of a variety of hunting, gathering, food processing, and manufacturing tasks, as well as indicating a significant level of interest in aesthetic and ceremonial occupations.

In addition to villages along the main stem, a number of important archaeological localities are known from the Columbia's tributary streams. It appears that, along some of the more significant feeder rivers at least, a pattern of life comparable to

that along the big river prevailed. Localities exhibiting housepit depressions and other evidence of stable occupation have been found along the Deschutes and John Day Rivers in the Grand Ronde Valley and in Hell's Canyon along Oregon's extreme northeastern border. The Mack Canyon Site on the Deschutes River, about 20 miles above its confluence with the Columbia, is illustrative, in a broad way, of such occupations.

At Mack Canyon, 29 housepit depressions have been mapped, scattered along an alluvial terrace overlooking the Deschutes. Excavations conducted in three of these depressions suggest the nature and age of occupation there. House pits 1 and 3, most extensively investigated, proved to contain the remains of shallow circular semisubterranean houses essentially identical to those known along

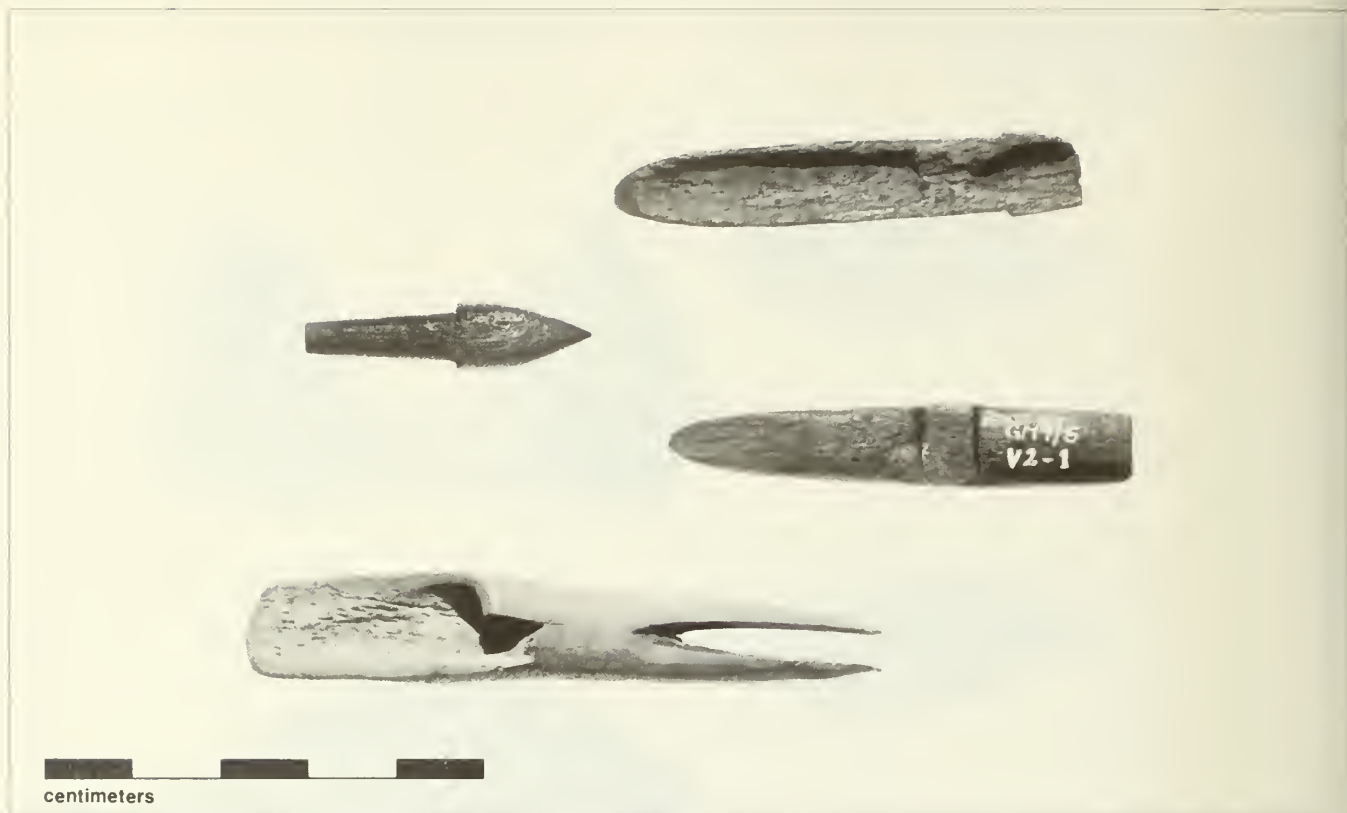


Fig. 3.23 Bone harpoon heads from Wildcat Canyon. Top, composite harpoon with valves and armature, bottom, toggling harpoon—in use would be armed with stone point.



Fig. 3.24 Bone gaming pieces from the Middle Columbia Alderdale Site.

the Columbia. The housepit floors measured roughly 20 feet and 15 feet in diameter respectively, and were constructed with a more deeply excavated central area, encircled by a less deeply excavated bench. In the depressed central area were found the remains of fires, and such domestic tools as hopper mortars, pestles, milling stones, pounding stones, flaked stone cutting and scraping tools, and projectile points. Some artifacts were also found scattered on the upper benches, but were not as common there. No doubt these concentrations reflect use of the central portion of the floor as the main domestic activity area, while the raised bench around it served for sleeping and storage.

The artifact inventory recovered from all parts of the excavation was quite large and varied. Projectile points were of side-notched, corner-notched, and basal-notched forms corresponding to the Snake River Corner-notched, Columbia Valley Corner-notched, and Wallula Rectangular Stemmed types as defined for the late Harder Phase of the southern Plateau region. Other flaked stone specimens were scrapers, knives, drills, and graters. Food-grinding implements included hopper mortars, pestles, and milling slabs. Bone awls, bone beads, and a fragment of a composite harpoon were also recovered.

Over 1000 pieces of bone were excavated, most of them broken up to the point that the species represented could not be determined. The relatively few identifiable specimens indicated the presence of deer, elk, bighorn sheep, jackrabbit, cottontail, beaver, coyote, and bobcat. Rare fish bones and fragments of freshwater mussel shell indicated use of aquatic fauna.

The age of the village at Mack Canyon is suggested by two ¹⁴C dates, as well as by diagnostic projectile point types, to span the last 2000 years. A ¹⁴C determination of 1900 BP was obtained on charcoal from the floor of House Pit 1, and a date of 700 BP came from the floor of House Pit 3. Objects of Euro-American manufacture found in the upper levels of the site along with aboriginal artifacts apparently represent the intrusion of objects from a 19th Century railroad camp long after the site was abandoned.

The few sites summarized here do not by any means exhaust the list of archaeological localities known along the Middle Columbia and its tributaries. Many others have been found, and excavated to varying degrees, on both sides of the river. For present purposes however, the sites already described sufficiently illustrate the broad outlines of the riverine lifeway.

Another aspect of the lives of southern Plateau people is reflected by archaeological sites known

from interior hinterlands, away from the major rivers. In the forested uplands, in mountain meadows, and along important natural routes, the remains of many, many special-purpose encampments are found. Most of these sites are small and unspectacular, and very few have been excavated or studied in detail, but by their presence they show that Plateau people, for all their dependence on the salmon and other resources of the great rivers, relied on the products of mountain and forest as well.

Archaeological surveys in the upper elevations of the Deschutes-Umatilla Plateau and Blue Mountains have located a number of sites consisting of scattered obsidian flakes and stone tools found on the surface around springs or along small streams. These presumably were occupied on a temporary, short-term basis for the purpose of hunting or collecting some prominent local plant resource. Upland meadows filled with the purple camas lily were undoubtedly a major attraction, for the rich harvests of starchy, nutritious bulbs they offered each summer.

A number of scattered localities have been observed where large amounts of obsidian, basalt, or chert flaking debris occur along with uncompleted or broken artifacts, indicating that raw materials were quarried and made into tools at such places. Perhaps the best known quarry-workshop site in this area is the Stockhoff Quarry northeast of LaGrande, where fine-grained basalt suitable for tool-making is abundant. In addition to great quantities of stone-flaking debris, the site has yielded specimens in various stages of manufacture from cores and initial rough forms to finished artifacts. Diagnostic types found there include large lanceolate and side-notched projectile points, of types which suggest that the quarry saw its greatest use between about 10,000 and 6000 years ago, with lesser attention accorded it since that time.

Life Style

In historic times, the native people of the Middle Columbia region were numerous and prosperous, perhaps more so than in any other part of the Plateau. Occupying the lower reaches of the vast Columbia River system as they did, they had primary access to the great salmon runs, which on the Middle Columbia began earliest in the spring, lasted latest in the fall, and involved the greatest variety of species. Further, the salmon intercepted there, in the first 100 to 200 miles of spawning runs which carried some of them into headwaters a thousand river miles upstream from the Pacific, were at their plumpest and most delicious.

The salmon harvest rarely failed, and the wealth it supplied to the native peoples is lyrically described by the famed early anthropologist Lewis Henry Morgan:

But the crowning advantage of this favored area was found in the inexhaustible salmon fisheries of the Columbia River, which, at stated seasons, filled the land with super-abundance of food. If the current representations with reference to these fisheries may be credited, they are unequaled in any part of the earth, in the quantity and quality of fish annually supplied. They enter this river in myriads, and penetrate its several branches, even into the mountain elevations (Morgan 1871: 241-242).

To participate in the salmon harvest, and to obtain the best fish, people came to The Dalles from all over the Plateau. It must have been a fine sight, and a scene of great excitement, when diverse people speaking many languages gathered there at the end of long journeys filled with anticipation of the event. In 1811, Alexander Ross estimated that the people congregated at The Dalles when he passed by during the fall season numbered 3000 or more.

The river, at The Dalles or other fisheries, was the dominant focus of economic efforts during spring and summer, as salmon were caught, dried, and prepared as winter stores. In spring and summer the camas lily was also available in great abundance, and parties went into the uplands away from the river to gather its bulbs and bake them in earth ovens to preserve them for winter storage. Very large numbers of people gathered annually at some of the more favored localities, where a given collecting party might remain for several weeks before returning to the salmon fishery or moving on to some other task. The fall, and the early spring, were times for hunting and foraging, and groups of younger people would leave their riverfront villages for forays into the hinterlands behind the river, to hunt deer, elk, bighorn sheep and other game, and to gather spring greens or fall berries. Winter was, by contrast, a quiet season, when people stayed close to their main settlements, occupied with domestic tasks and the repair and manufacture of clothing and equipment.

Trade was extremely important in the lives of historic Plateau natives. The annual congregation of hundreds or even thousands of people at the major fisheries provided occasions for the exchange of local products and manufactures from all over the Plateau and adjacent regions (Fig. 3.25). In pre-horse days, overland exchange of such bulky items as the 90-pound "bricks" of pounded and dried salmon that Lewis and Clark saw stockpiled at The Dalles in 1805, must have been uncommon. Nor

was there probably the major traffic in bison hides brought from the Plains by mounted Plateau peoples that existed in historic times. Nevertheless, the far-reaching exchange network observed historically can hardly have sprung into being in the few decades between the time that Columbia Plateau peoples acquired the horse in the mid-1700's and the time of Lewis and Clark's arrival in the area. Ancient antecedents for the practice in the prehistory of the region, rooted in the regular movements of large numbers of people that were inherent in the salmon-fishing economy, are clearly implied. A compelling account of intergroup relations between southern Plateau peoples during the period 1805-1855, after the horse was well established in Plateau culture, is provided by Anastasio (1972). Though the high degree of economic and other interaction between different groups that he documents was surely brought to its apogee by the historic adoption of the horse, his discussion has important implications for the prehistoric period as well. A partial listing of items exchanged within the Plateau during historic times is provided in Table 1, which also indicates the general areas from which given types of goods came.

Table 1. Items traded among Plateau peoples of the Historic period (From Anastasio 1972: 120, 136)

Source area	Items
Upper Columbia and western Plateau	camas roots, hazel nuts, huckleberries, beargrass fibers, basketry, tule mats, dried berries, hemp, stone artifacts, freshwater shell ornaments, hemp twins
Middle Columbia-Lower Snake	salmon, camas, baskets, hats, freshwaters shells
Northwest Coast	marine shells, dried salmon, salmon oil, deerskins, wapato root
Great Basin	edible roots, skin lodges, elk and buffalo meat
Klamath River	wocas lily seeds, elkskins, beads, shells, bows
Great Plains	catlinite and catlinite pipes, buffalo skin tents, painted buffalo hide bags, pemmican, buffalo horn and robes, parfleches, dressed mooseskins, buffalo bone beads, feather headdresses

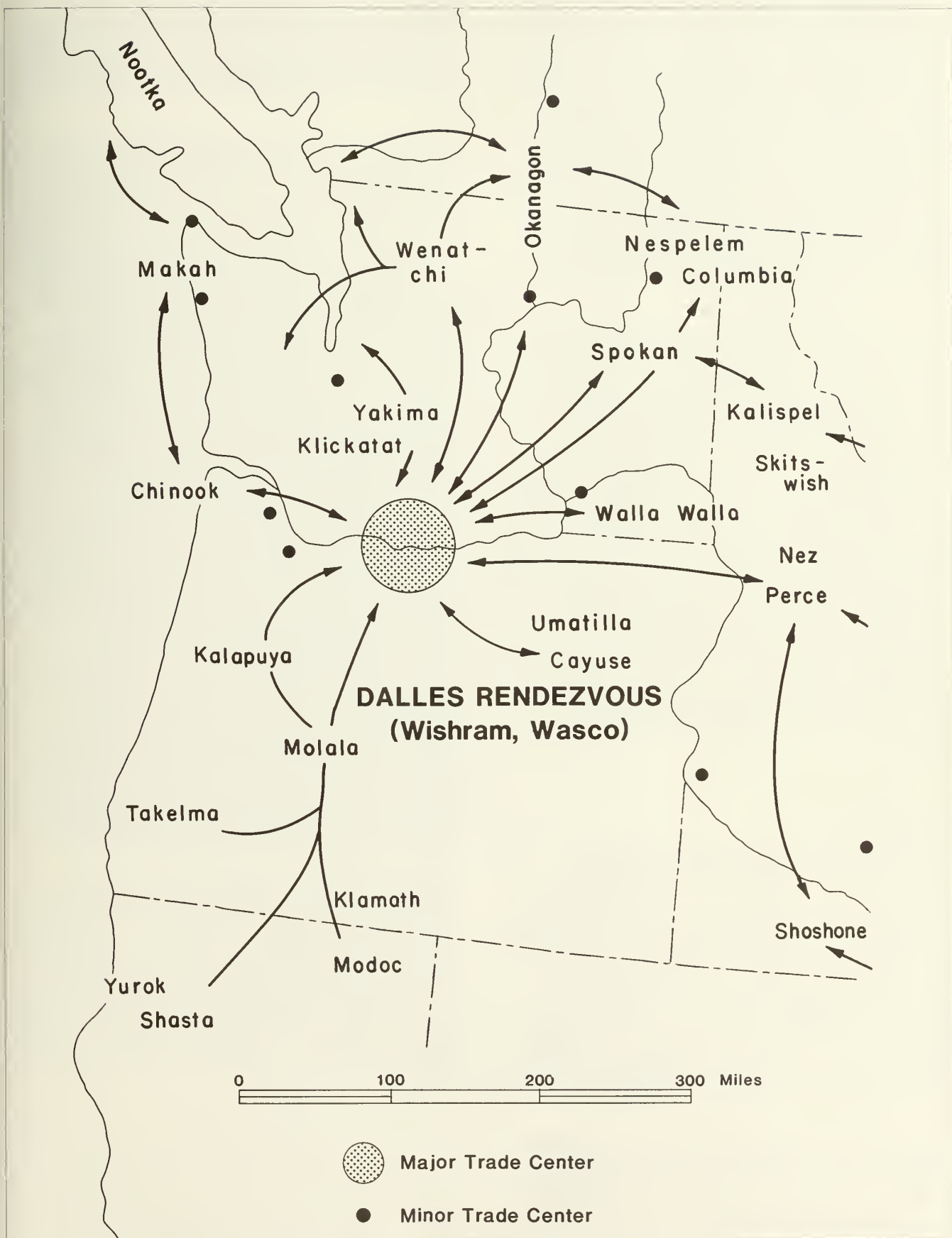


Fig. 3.25 Selected aspects of the Plateau trading system centered on The Dalles. After Wood (1972:Fig. 1).

That the Plateau life style as just sketched evolved over a very long period of time is made clear by the archaeological record reviewed previously. Salmon vertebrae were found by the thousands in the lower levels of the Roadcut Site at The Dalles, ^{14}C dated between roughly 10,000 and 8,000 years ago. The hunting of small game was also attested there at the same time. The Wildcat Canyon Site implies a similar adaptation to the resources of land and river, including hunting of large game, at about the same period. No dwelling structures datable to this time range were discovered at either place, though their presence cannot be ruled out, because of the very small areas actually explored in the deeply buried older levels of these sites.

The archaeological record known from along the rivers between about 8000 and 4000 BP is extremely thin, and not very informative, beyond indicating human presence in the region. Sites dating after 4000 BP, and especially after about 2500 BP, are, however, quite common. In the Wildcat Canyon, Umatilla and Mack Canyon sites, for example, salmon vertebrae, the bones of land mammals both large and small, and hopper mortars and pestles are present, reflecting the triad of fishing, hunting, and gathering that underpinned the Plateau economy as historically known. The floors of substantial houses have been found, often overlapping one another in a way that indicates repeated rebuilding on the same spot. These houses occurred in clusters, some small but others suggesting the existence of quite large villages. These sites and their contents provide a very good picture of a society that must have been in all essentials much like that sketched for the historic period.

Problems

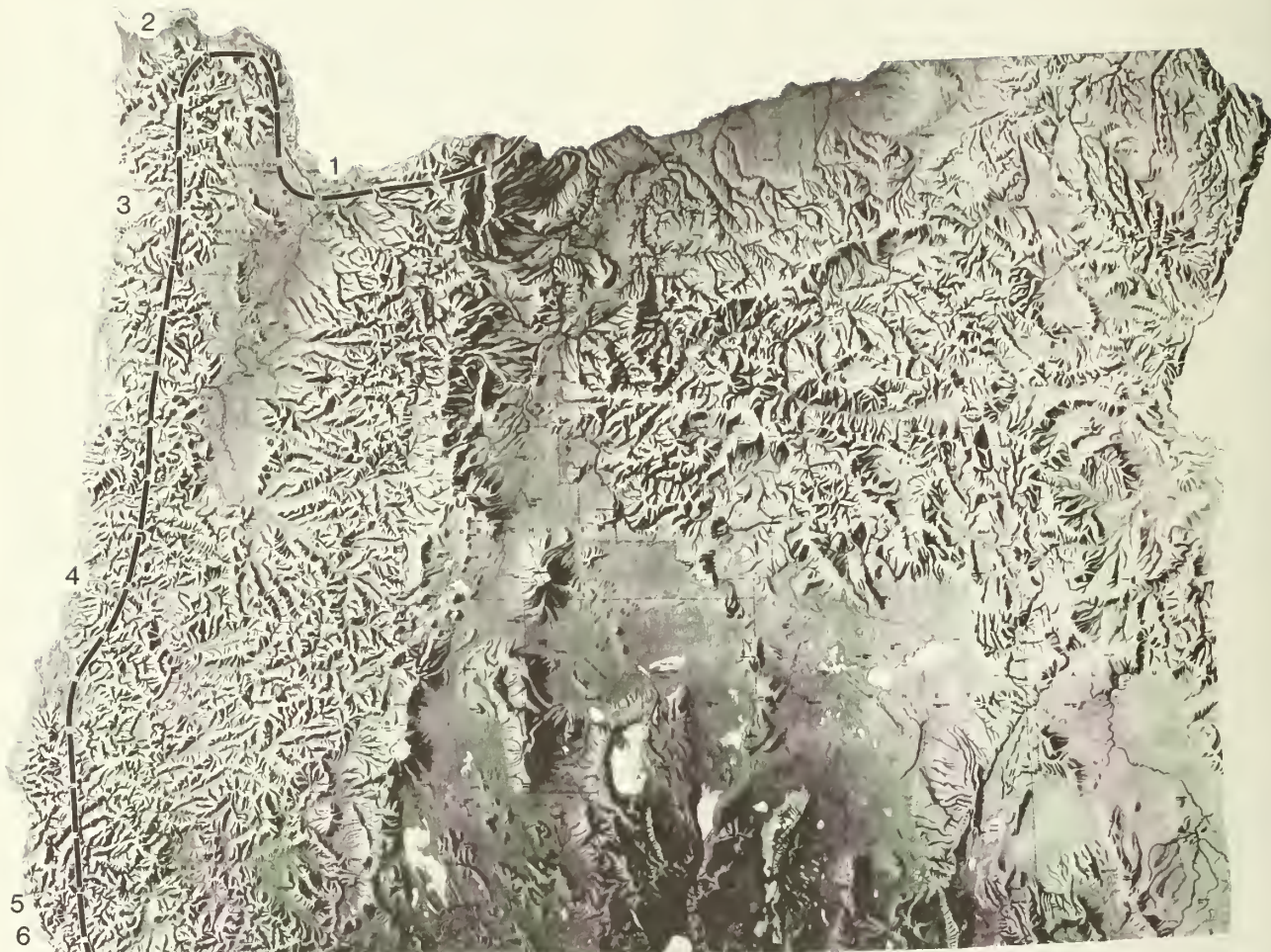
The last few paragraphs reflect our current understanding of culture history in the Middle Columbia region. Much is known, but as pointed out, there is a serious gap in our knowledge of the prehistoric cultures that existed between about 8000 and 4000 BP. And there remains the uncomfortable fact that our knowledge of the earlier period is derived from excavations far too few and limited in extent to convincingly demonstrate whether the apparent lack of houses and villages at that period is genuine, or merely due to inadequate sampling. Because of these ambiguities, differing views of the evolution of Plateau culture are possible.

One interpretation, which hews closely to evidence currently available, suggests that the earliest people of the Plateau must have been primarily terrestrial hunters and gatherers who used the resources of the river very little, and then only in exceptionally favored places like The Dalles. According to this

interpretation, it was probably the warming and drying of mid-postglacial climate that drove Plateau people to rely more and more on aquatic resources, and led to the development of settled villages with permanent houses along the rivers after about 4000 BP.

A competing interpretation argues that an early people entering a region characterized by some of the richest salmon runs known anywhere in the world would have lost no time in learning to exploit them, and would quickly have come to rely heavily upon the salmon, as did the people of the historic period. The evidence from The Dalles does indeed demonstrate an association of salmon bones and human artifacts suggesting exploitation of the salmon runs from as early as 10,000 BP. The fact that no house and village remains have been identified for this early time is, it is suggested, due simply to the very limited extent of archaeological soundings in deposits of this age. Further, the extremely limited evidence for activity along the Columbia between about 8000 and 4000 BP is not due, according to this viewpoint, to a lack of human activity there at that time, but is due rather to erosional episodes along the river having obliterated or buried the deposits which once contained an archaeological record of this occupation. As briefly noted at the beginning of this chapter, an erosional episode is known to have occurred along the Lower Snake River between 5000 and 4000 BP, with renewed deposition thereafter and relative geological stability after about 2500 BP. Perhaps these same conditions would have pertained downstream on the Columbia as well. In this interpretation, the "appearance" of houses and villages along the Columbia between 4,000 and 2500 BP reflects simply the cessation of flooding which destroyed or deeply buried earlier deposits, allowing the archaeological record of subsequent times to remain undisturbed for later discovery.

Future archaeological work in the region will ultimately resolve this question in one direction or the other, and no doubt introduce new questions. As knowledge increases with a fuller archaeological record, it should also prove possible to address questions of group organization and interaction that have not been treated in the present account at all, except to refer to the historic period situation, which implies a prehistoric evolutionary sequence leading up to it.



Key to Sites

- 1-Portland Basin
- 2-Mouth of the Columbia River
- 3-Netarts Sand Spit
- 4-Umpqua-Eden
- 5-Pistol River
- 6-Lone Ranch Creek

Fig. 4.1 Map of Lower Columbia River and Oregon Coast region showing site locations.

Chapter 4

Lower Columbia and Coast

Native cultures of the Lower Columbia River and Oregon Coast belonged to the greater Northwest Coast culture area, which extends from Yakutat Bay, Alaska, on the north to Cape Mendocino, California, on the south (Fig. 4.1). The greatest intensity of the Northwest Coast culture pattern was expressed in the north, along the shores of British Columbia and southern Alaska, but the Lower Columbia was nevertheless a major center in its own right. It supported in aboriginal times the highest density of population of any comparable area in the Northwest, in numerous villages of large multifamily wooden plank houses.

The Lower Columbia, from The Dalles to its mouth, was occupied by Chinookan-speaking people using closely related dialects of a common language, including the Wasco, Cascades, Multnomah, Skiloot, Cathlamet, and Clatsop. South of the Clatsop along the coast lived the Nehalem, Tillamook, Nestucca, Salmon River, and Siletz people, all speaking dialects of the Tillamook language. South of the Siletz were the Yaquina and Alsea, speaking dialects of the Alsean language, and beyond them the Siuslaw and Lower Umpqua, speakers of the Siuslawan language. Adjacent to the Lower Umpqua people were the Hanis and Miluk, both speaking the Coosan language, and beyond them a number of small groups, all speaking dialects of the Athabaskan language: the Upper Coquille, Kwatami, Tututni, Chetco, and Tolowa, extending into northern California.

All these groups shared a broadly similar way of life, though of course local variations must be recognized. Research on the Lower Columbia in particular has shown significant differences to exist between the settlement patterns of adjacent societies exploiting different environmental subzones, and it seems likely that future research may establish similar findings for various reaches of the coast (Minor 1983; Saleeby 1983b). On current evidence, this riverine/maritime culture can be traced about 3000 years into the past, and the earlier prehistory of the region remains a major problem for further investigation.

Time and Environmental Change

Geological and climatic evidence shows that the outer edge of the Oregon Coast has become submerged within relatively recent times. This is seen most clearly in the drowning of the lower courses of coastal rivers, up which the tidal action of the sea extends for long distances. In glacial times, when much of the earth's water was locked up on land in the form of great ice sheets, sea levels were lower, world-wide, than they are now. Then, the Oregon coastline lay farther westward than it does at present. With postglacial warming, which was underway by 11,000 BP and reached a peak between 8000 and 4000 BP, water stored as ice on the continents melted back into the oceans, resulting in a worldwide rise in sea level of 300 to 400 feet (Flint 1971; Heusser 1960).

The date at which Oregon's Pacific coastline became stabilized near its modern level can be roughly estimated. Logically, sea-level stabilization ought to date from the time when a climatic regime comparable to today's was finally established, and this, according to pollen studies carried out over a broad area of the Northwest, took place some time after 4000 BP (Hansen 1947; Heusser 1960).

Such an interpretation assumes, of course, that the land itself has remained tectonically stable, without major uplifting or subsidence. This is broadly true in the Oregon case, though there has been some shifting. In fact, the Oregon Coast has been very gradually rising over a long period of geological time, and ^{14}C dates between 31,000 and 35,000 BP have been obtained on marine shells from old beach terraces on the south coast now elevated up to 200 feet above sea level. Warping of the land itself has, however, been uneven, and elevations of the youngest marine terrace along the southern Oregon Coast range from a point below modern sea level to 225 feet above it. Baldwin (1976) estimates that the average elevation of these old sea-terraces is around 100 feet. He also points out that about 30,000 years ago, when these terraces were forming, the sea stood at about its modern level. If it is reckoned, thus, that the land has risen an average of 100 feet in the last 30,000 years, then given a constant rate of uplift it would have risen only 35 feet or so since the end of glacial times about 11,000 years ago. This amount of uplift is relatively insignificant compared to the estimated 300 to 400 foot worldwide rise in sea level since deglaciation, and it can therefore be seen that even with some uplifting of the land, sea level rise overtook ancient shorelines in a very significant way during the period from terminal glacial times until the modern climatic regime was established after 4000 years ago.

The reason for laboring this point in such detail is that it may explain the lack of early human occupation sites along the Oregon Coast, as briefly mentioned above and documented in the archaeological review to follow. Early sites along the shoreline, if any existed, would have been surf-beaten and destroyed by the sea as it rose to its present level. A similar fate would have befallen any early sites along the banks of the Lower Columbia as the river waters rose in concert with the level of the sea. This has important consequences for the interpretation of coastal and Columbia estuary prehistory, and for future research in the area, points which will be referred to again in the ensuing discussion.

Environment and Human Settlement

The Lower Columbia Valley and Oregon Coast form a natural unit in many respects, sharing the same cool, mild climate, with abundant rain and a narrow range of temperature fluctuations, and much the same spectrum of plant and animal species. Wooded hills are dominated by the Douglas-fir, which occurs both in vast unmixed stands and in more mature forest mixed with western hemlock, western red cedar, and other coniferous species. Sitka spruce is a major constituent of the forests of the coastal fog belt. Along streams the deciduous red alder, bigleaf maple, and Oregon ash are common. Various ferns, salal, huckleberry, salmonberry, and other low-growing plants constitute the dense understory vegetation of the region. Terrestrial fauna includes elk, deer, bear, jackrabbit, brush rabbit, beaver, various squirrels and other rodents, raccoon, otter, and various members of the weasel family, to name only the most common forms. Many kinds of waterbirds and inland species are to be found there as well, the region being in the heart of the Pacific Migratory Flyway.

Fishes were of course abundant throughout the area, in great variety. Salmon were of primary importance to both the coastal and riverine peoples, but many other anadromous species, including steelhead trout, eel, and sturgeon were also prized. Strictly marine fishes, such as ling cod, halibut, flounder, and various small rockfish were taken as well. Sea mammals, especially seals, were available both along the coast and in the interior rivers during the salmon season, when they followed migrating fish upstream. Finally, shellfish of both fresh and marine waters were abundant and could be gathered in large quantities at many places.

These similarities in the natural resource base no doubt account for the general sharing of a common fishing, hunting, and gathering technology among the native peoples of both river and seashore. Broadly speaking, Northwest Coast culture in general is an adaptation to this biota, available in varying abundance from Cape Mendocino in California to Yakutat Bay in Alaska. Local geographical factors have great effect, however, on the relative abundance, and particularly the accessibility, of key resources in different areas, and a major contrast is evident in the general richness of the Lower Columbia Valley as compared to the Oregon coast.

The 170 miles or so of the Lower Columbia River, from The Dalles to Clatsop Spit on the Pacific, is particularly rich in fish; five species of anadromous

salmon funnel into the river from late winter to late fall in huge concentrations, as they head for spawning grounds throughout the thousands of miles of tributaries of the vast Columbia drainage. Being thus newly derived from the sea, they are moreover in the finest condition. Smelt and eels similarly run upriver, and a wide variety of freshwater fishes, including the huge sturgeon, is available on the Lower Columbia, the year around. The coast, by contrast, though rich in these same natural resources, is open, swept by strong seas, and possesses few large estuaries and protected bays that concentrate aquatic species in the way that the Lower Columbia does. The coastal rivers flowing into the Pacific are short, with tributary systems and spawning grounds of very limited extent. Their salmon harvest—though potentially rich—simply does not compare with that available along the Lower Columbia. These factors had their effect on the relative wealth and numbers of the native human population, which was at least several times as densely concentrated along the Lower Columbia as along the Pacific shore: it has been estimated that some 22,000 people lived along the Lower Columbia in early historic times, as compared with only half that number along the entire Oregon coast (Kroeber 1939:133, 136).

Cultural Chronology and Time Markers

A cultural sequence spanning the last 2500 years has been developed for the Lower Columbia Valley, based on ¹⁴C-dated excavations at seven sites near Portland. Comparison of the diagnostic projectile point types dated in the Portland Basin sites to other specimens from The Dalles and several sites on the Oregon Coast and in the Oregon-California border zone shows striking typological similarity if not complete identity. This allows extension of the Lower Columbia chronology throughout the area of concern in this chapter (Pettigrew 1981).

As noted, the formally defined sequence begins at about 2500 BP, a date which marks the beginning of the Merrybell Phase. Scattered evidence which quite clearly predates this time but is not well-controlled, is here referred to a pre-Merrybell period. Characterized by large lanceolate, leaf-shaped, and stemmed points, this is a catch-all category, including points similar to the Windust, Cascade, and other quite early types of the Plateau sequence. These specimens could represent a long span of time, from 10,000 BP to shortly before 2500 BP. Only scattered examples of such types have yet been found along the Lower Columbia and Coast, though all are represented at and above The Dalles, where they characterize the Windust, Cascade, and Tucannon phases.

The Merrybell Phase, 2500-1750 BP, is characterized by medium-sized side-notched, corner-notched, and lanceolate points with broad stems probably used as atlatl dart points. The notched specimens resemble the Snake River Corner-notched type of the Plateau, there diagnostic of the early Harder Phase.

The Multnomah I sub-phase, 1750-700 BP, is characterized by small, triangular corner-notched points having narrow stems, that are clearly arrowpoints. They resemble the Plateau types Columbia Valley Corner-notched and Wallula Rectangular Steamed, which are diagnostic of the late Harder Phase.

The Multnomah II sub-phase, 700-200 BP, is characterized by small, side-notched projectile points of a distinctive type recognized throughout the west as Desert Side-notched. Small, unnotched, triangular points also accompany this type. Comparable points occur in the late Harder Phase of the Plateau.

The Multnomah III sub-phase, 200-100 BP, is recognized by the appearance of Euro-American trade goods in association with aboriginal assemblages; in the Plateau sequence this corresponds to the appearance of trade goods in the terminal Harder Phase.

The projectile point types referred to are illustrated in Fig. 4.2. It is of interest, but not surprising, to find that projectile point styles were shared so widely along the Columbia River and Pacific Coast of Oregon. This similarity bespeaks, no doubt, the continued interaction and sharing of mutually usable information and ideas that would be expected among people relying on the same kinds of natural resources and practicing the same kinds of economic activities.

Major Sites

Hundreds of prehistoric sites are known to exist along the Lower Columbia. These have been discovered despite the lack of any systematic, comprehensive archaeological survey of the area, and it seems likely that hundreds more remain to be recorded. In 1805, Lewis and Clark estimated that some 8000 souls lived along the Columbia in the roughly 50-mile stretch between the mouth of the Willamette River at modern Portland, and the mouth of the Cowlitz river downstream. Some of the native villages were large enough to be called towns, and travelers on the river were never long out of sight of a settlement.

Archaeological investigations along the Lower Columbia have not yet been extensive enough to

Fig. 4.2 Projectile points from the Lower Columbia region (Portland Basin). Upper rows, Multnomah phase; bottom rows, Merrybell phase.



permit detailed descriptions of the prehistoric antecessors of these settlements. But there is sufficient evidence from limited excavations to show that a way of life at least broadly comparable to that of early historic times was lived there as early as 2500 BP, if not before (Pettigrew 1981; Minor 1983; Saleeby 1983b).

The Merrybell Site, on Sauvie Island, has so far provided the earliest evidence of what seems to have been a major riverine occupation. Sauvie Island lies west of the Columbia, below the main river's confluence with the Willamette downstream from the great bend at which the course of the Columbia turns northward below modern Portland. The area is an island by virtue of its being flanked on one side by the Columbia River, and on the other by Multnomah Channel, which diverges from

the Willamette several miles above its mouth and flows parallel to the Columbia for 15 miles or so before joining the big river.

The Merrybell Site is situated on the edge of a former slough, extending along it for nearly a quarter-mile. An extensive area was dug by the Oregon Archaeological Society, yielding a large number of specimens. Subsequent stratigraphic excavations recovered a number of radiocarbon samples, which produced ^{14}C dates around 2900 BP for a lower level. Traces of structural remains were noted in these excavations but no well-defined dwellings were recorded. Only a few stone specimens were recovered from the very limited excavations in the lower level of the site, but remains from the upper level, along with specimens and ^{14}C dates from other sites near Portland,

allowed the definition of a cultural phase named after the type site.

The Merrybell Phase is dated between 2500 and 1750 BP. Projectile points included medium-sized, broad-necked points used to tip atlatl darts, and small, narrow-necked arrowpoints. Shaped and grooved stones interpreted as weights used to add heft to the atlatl or spear-thrower were also present. Rare fishnet sinkers were represented by large and small specimens, either notched or showing evidence of having been wrapped about with cordage, as well as a few perforated specimens. Shaped and unshaped stone pestles indicate the processing of vegetal foods. Uniface knives and peripherally flaked pebble choppers were common, as were stemmed drills. These, along with small tabular stone axe or adze-heads, abrading stones of pumice, sandstone, and a hard igneous rock, and antler splitting wedges, apparently comprised tools for working wood, bone, and antler.

Hunting, fishing, and various domestic processing and manufacturing activities seem to be represented by the assemblage. Faunal remains from the Merrybell Site were poorly preserved, but bones of deer, unidentified birds, salmon, minnows, suckers, and sturgeon survive to show that those species, at least, were taken (Saleeb 1983a).

The Multnomah phase, 1750-100 BP, followed the Merrybell. This phase represents a cultural tradition that continued unbroken into the historic period, where it appeared as the life way of the Chinookan peoples described by Lewis and Clark and others. Three temporal subdivisions are recognized: Multnomah I, 1750-700 BP; Multnomah II, 1750-200 BP; and Multnomah III, 200-100 BP.

The Multnomah I subphase, best represented at the Cholick Site, also on Sauvie Island, is similar to the Merrybell Phase in most details. But it differs in exhibiting a higher proportion of narrow-necked arrowpoints, a lower proportion of broad-necked dart points, and changes in the relative frequencies of certain other artifact styles. Large cutting tools referred to as "mule-ear knives" first appear in Multnomah I. The end of this subphase is marked by a major episode of flooding in the Lower Columbia, the Cascade Landslide Flood, which followed upon a massive earth movement that blocked the narrow Columbia Gorge above Portland about 700 years ago:

The Cascade Landslide created a temporary earthen dam, impounding the waters of the Columbia River near the site of Bonneville Dam in the Columbia Gorge.

When the earthen dam broke, it caused a catastrophic flood downstream that destroyed

many aboriginal settlements; it also may have caused major changes in the topography of river channels and land surfaces. As a consequence, villages may have been re-established at new sites, in response to shifted salmon migration routes and alterations in the river and slough channels used for transportation (Pettigrew 1981:121).

At the Cholick Site, a thick stratum of silt completely devoid of cultural remains, which occurs within the deposits not far above a ^{14}C date of 850 BP, probably represents this event. With only one documented exception, the Cholick Site itself, those settlements in the Portland Basin known to have been occupied before the date of the Cascade Landslide Flood were not reoccupied thereafter; sites of the Multnomah II and III subphases, postdating the flood period, appear in new locations.

The best single representative of the Multnomah II and III subphases is the Meier site, a mile or so west of Multnomah Channel. Characteristic of both subphases are small, narrow-necked arrowpoints, similar to those of the preceding subphase, but also including new styles. Broad-necked points, which diminished steadily in numbers after the Merrybell Phase, were by these times quite rare. Other items presumably related to the hunt were flaked stone scrapers and large cutting tools referred to as mule-ear knives.

Other aspects of the food quest were represented by bone points, barbs, and foreshafts, which seem to be parts of fish harpoons, and perforated stones interpreted as net sinkers. Vegetal food processing is indicated by stone mortar fragments, heavy shaped and unshaped pestles, and a perforated deer antler tine identical to those used historically as digging stick handles.

Manufacturing activities appear to be represented by a variety of specimens, including splitting wedges of bone and antler, abrading stones of pumice and hard igneous rock, and flaked stone graving tools, all probably used in woodworking; hammerstones and antler tine flakers, probably used in the making of flaked stone artifacts; and pointed bone splinters, that may have functioned as awls in the manufacture of leather and basketry items.

Objects of artistic, ornamental, or ceremonial importance were well represented at the Meier site. Incised clay tablets, clay figurines, simple stone and bone sculptures of birds and other creatures; ground stone and shell beads and pendants; and a perforated shark's tooth pendant, all portray aboriginal craft work and concepts. White trade goods, attributable to the very latest part of the

occupation, included rolled copper tube beads, glass trade beads, and some unidentified metal fragments.

The bones of some 40 different kinds of animals were identified in a study of faunal remains from three sites in the Sauvie Island vicinity, illustrating the range of the aboriginal diet. The most common large animals were deer and elk. Bear, dog, raccoon, beaver, muskrat, duck, goose, swan, and crane were also represented. Fish remains included bones of salmon, sturgeon, sucker, and minnow. Shells of freshwater mussels were recovered as well. In all, though the list of archaeologically preserved specimens is far smaller than that which could be compiled for the native people of the area based on historical accounts, a dietary economy very like that of the historic Chinook is suggested. A biogeographical analysis took into account the spatial distribution of these and other local resources, and the amount of time and travel necessary to procure them. This led to the conclusion that the prehistoric inhabitants of Sauvie Island enjoyed a sufficiently rich, varied, and accessible natural resource base to permit year-around occupation of sedentary villages, without the necessity for seasonal movement so commonly seen among hunting-gathering societies elsewhere (Saleeb 1983b).

A culture comparable to that of the Portland Basin is archaeologically attested downstream on the Columbia, and from the seacoast adjacent to the river mouth. The Palmrose Site, a large shell midden on the Pacific shore near Seaside, Oregon, has produced a number of ^{14}C dates spanning the period roughly 2600-1700 BP, placing it perfectly within the Merrybell horizon (Phebus and Drucker 1973, 1977). The cultural inventory from Palmrose demonstrates a clear affinity with that of the Merrybell Site. Medium to large stemmed and notched projectile points, atlatl weights, stone mortars, antler digging stick handles, abrading stones of pumice, antler splitting wedges, and shark-tooth pendants, are all shared between the two sites.

Excavations at the Palmrose Site concentrated on exposing the floor of a large rectangular structure. The excavation results seem to imply a building much like the wooden long houses described throughout the Lower Columbia area by Lewis and Clark and other early Euro-American travellers. A ^{14}C determination on charcoal from a hearth near the center of this structure returned a date of about 2550 BP, indicating that the historic house type, or something very close to it, was already in use on the coast in ancient times.

The Par-Tee Site, another shell midden not far from Palmrose, has been ^{14}C dated between 1700 and

about 1050 BP, placing it in the time range of the Multnomah I and early Multnomah II subphases upriver. Again, its cultural inventory shows considerable similarity to that known from the Portland Basin at the same period, with its medium to small projectile points, atlatl weights and actual atlatl parts, composite bone harpoon points, and antler wedges and digging stick handles.

More recent excavations at sites near the Columbia River mouth have independently established a Seal Island, Ilwaco 1 and 2, and Ethnographic phase sequence that extends from 3100 BP to the historic period. It closely parallels the Portland Basin sequence in both time range and cultural content. The work conducted at these sites, in conjunction with archaeological survey, ethnographic and ethnohistoric research, strongly indicates that differences in exploitation of the varying natural environments of the brackish estuarine and freshwater riverine zones of the Lower Columbia led to important differences in patterns of food procurement and settlement location among societies living near the river mouth. Further, it appears that these differences are ancient and probably fostered the linguistic and cultural division historically observed between the Lower and Middle Chinookan peoples who occupied this area at the time of Euro-American contact (Minor 1983).

On the central Oregon Coast, excavations near the mouth of the Umpqua River have recovered evidence of an early occupation (Ross and Snyder 1979). The Umpqua-Eden Site occurs on a high terrace of the Lower Umpqua River, near extensive mud flats which are exposed at low tide, allowing opportunity to collect a variety of shellfish. The site midden itself is made up of mollusk shells, predominantly clam and mussel, but other species are represented as well. From the base of the shell midden a ^{14}C date of slightly under 3000 BP was obtained, making the site one of the earliest so far known on the Oregon Coast.

The artifact assemblage recovered to date is limited but interesting (Figs. 4.3, 4.4). Hunting and fishing pursuits are attested by the finding of flaked stone projectile points, bone fishhooks, harpoons, and barbs from fishing spears, and a sandstone net weight. Bone awls and pins, and stone scrapers, may indicate hide tailoring. Bone wedges suggest woodworking, while a siltstone pipe and fired clay pipes are suggestive of tobacco smoking. Remains of two kinds of aboriginal house structures have been explored. One house floor is believed to represent a rectangular plank house of the general type made by historic Lower Umpqua people. The other structure is circular in outline, with a packed clay floor.

Fig. 4.3 Late projectile points from the Umpqua-Eden site.



The site midden contained a great deal of food bone refuse, reflecting the diversified animal protein component of the native diet, and reflective as well of the environmental setting of the site from which people ranged out to collect a diverse bag of wild products. Terrestrial mammals included deer, elk, bear, raccoon, river otter, and beaver. Bird remains included several kinds of ducks. Sea mammals included whale, stellar sea lion, harbor seal, and sea otter, while fishes included salmon and starry flounder. Shellfish, as previously mentioned, made up a large percentage of the midden deposit itself.

The Umpqua-Eden Site may span a considerable range of time subsequent to 3000 BP, but current dating evidence does not allow an assessment of how much time may be involved. A single glass trade bead is reported from the site, but the extent

to which historic period occupation may actually be represented there is not clear.

A comparably early site is known from the far south coast, near the mouth of the Pistol River about 20 miles from the California border (Cressman 1977:194-195).

At CU62, limited salvage excavations in an area nearly destroyed by highway construction uncovered part of a packed clay floor in an apparent pithouse depression. A ^{14}C date of 3000 BP from a partially burned wooden beam associated with this structure is the earliest age determination for aboriginal occupation known from the Oregon coast, though in fact it is only insignificantly earlier than the date from Umpqua-Eden. Relatively large leaf-shaped projectile points with serrated edges, the only type



Fig. 4.4 Bone fish hooks from the Umpqua-Eden Site. Approximately 2 times actual size.

represented from this site, are reminiscent of the Cascade type known from the Plateau sequence as early as 8000 BP or so, but more nearly resemble the large Gold Hill type, introduced in the Southwest Mountains chapter to follow. These points appear to be the earliest type yet dated on the Oregon coast; in terms of the cultural chronology outlined at the beginning of this chapter, they would relate to the pre-Merrybell period.

It is possible that the Lone Ranch Creek Site, a shell midden farther south along the coast that was as much as 10 feet deep in places, may have been initially occupied as early as CU62, as well as in later prehistoric times. The site was not ¹⁴C dated,

but projectile points found in the lowest levels of the midden were all leaf-shaped types, as at CU62, and may date to around 3000 BP, if not earlier. The projectile points from elsewhere in the midden were of small stemmed varieties, corresponding in a broad way to some of the types known from the later Multnomah subphases of the Portland Basin, and suggesting an age range for the major occupation of perhaps 1000 to 500 BP. Since no objects of Euro-American manufacture were found at Lone Ranch Creek, it is evident that the site had been abandoned sometime before the White incursion around 200 years ago.

Four houses were excavated at Lone Ranch Creek (Berreman 1944). They had packed clay floors and well defined firepits, the floors having been excavated to a depth of about two feet below ground surface. The charred remains of vertical plank walls suggested that substantial wooden houses of basically the historically-known type were represented. These houses indicate the permanence of the settlement as do the 32 human burials encountered at various places during the excavations.

Hunting technology included flaked stone projectile points and scrapers. Fishing and sea mammal hunting is suggested by the finding of bone fishhooks, harpoon points, and spear points, and net sinkers of ground stone. Grinding slabs attested the milling of seeds or nuts.

Manufacturing was indicated by several kinds of specimens. Bone awls and needles suggest hide tailoring, and ground stone mauls, adzes, drills, and arrowshaft straighteners, along with bone gouges, suggest woodworking activities. A few fragments of baked clay, which appear to represent pieces of ceramic pipes, are indicative of either limited pottery manufacture or trade from a ceramic-producing region.

Ornamental objects of shell were fairly numerous. Beads and pendants of *Olivella* shell, and other ornaments of abalone shell and *Dentalium* were recovered in the excavations. Since the natural habitat of *Dentalium* is restricted to the coast of British Columbia, it appears that these specimens are representative of long-distance trade.

Faunal remains from the site assemblage included the bones of deer, elk, seal, sea lion, and whale, as well as unidentified fishes and huge quantities of mollusc shells, of which the midden was largely composed. Over 50 species of marine shellfish were identified from the collections. It is not known that the historic people of the area actively hunted the whale, but occasional specimens accidentally beached or washed up on the shore were exploited for the wealth of meat, oil, and whalebone they

provided. Possibly the archaeological specimens had a similar origin.

A number of sites are known along the Oregon Coast that were occupied in late prehistoric and early historic times. The two most fully investigated of these, one from the south coast and one from the north coast, will serve to illustrate the native culture of this period.

The historic Tututni village of Chetlessentan, or Chetleshin, on a bluff high above the ocean at the mouth of the Pistol River, has been extensively excavated, giving a quite full picture of its inhabitants' lifeway. The historic village was burned and destroyed in 1856 during the Rogue River Indian War, but marine shell deposits containing artifacts to a depth of over seven feet in some places indicate a long period of occupation prior to that time. Small triangular arrowpoints found throughout the midden suggest that the occupation of the site may correspond in age to some or all of the Multnomah subphases of the Lower Columbia, which is to say to the period about 1750-100 BP.

Over 30 house depressions were observable at the Pistol River Site, as it is now called (Heflin 1966). The results of archaeological work in some of these are concisely summarized in a recent synthesis as follows:

As described by Heflin, the aboriginal houses at the Pistol River Site were built around rectangular depressions ranging from 2 to 4 feet in depth, and averaging about 12.5 feet by 15 feet in size. The corner posts and vertical wall planking of these structures were made of cedar. Most of the houses probably had gabled roofs of cedar, bark, or thatch. Floors within these houses consisted of hard-packed clay, gravel, or beach sand. Stone encircled fire pits were located near the center of the rear of these houses (Beckham and Minor 1980:30-31).

The character of this village as a stable and long-established settlement is also indicated by the fact that over 20 human burials were recorded from the excavations. Some burials were encountered beneath the floors of houses, others within the midden itself. Artifacts associated with the human remains included such aboriginal items as pine nut beads, stone beads, **dentalium** shells, and such Euro-American trade specimens as glass beads and brass buttons.

A wide range of artifacts from the site attests diverse activities by its occupants (Figs. 4.5-4.9). Flaked stone arrow points and knives, bone spearpoints and harpoon foreshafts indicate hunting of terrestrial and marine species. Bone fishhooks and bipoints that might have served as fish gorges,

and an abundance of notched net sinkers made from river cobbles and pebbles give evidence of fishing. Plant food processing is indicated by the finding of ground stone pestles, hopper mortar bases, and bowls. Manufacturing activities are reflected by finds of mauls, cobble chopping tools, adze handles, elk antler splitting wedges, flaked stone drills, scrapers, and gravers, and actual craft products themselves: bone headscratchers, hairpins, nose and ear pins (these identified from historically identified analogues), whalebone clubs, a stool and a bowl made from whale vertebrae, and a bear figurine and numerous tubular pipes of fired clay.

Contact with White traders and settlers is shown by a series of items. Glass trade beads and brass uniform buttons were found with burials. From the house depressions and midden deposits came in addition such items as the lock from a muzzle loading rifle, an iron knife, iron and copper bars, square nails, copper pendants, a ceramic trade pipe, and a single Chinese coin.

The diet of the Pistol River villagers is represented in part by imperishable remains from the midden. The vegetal component of the diet, which surely must have been extensive, is now attested to only by the processing tools mentioned above, but bones and shells give evidence of a variety of animal species. Land mammals are represented by the bones of deer and elk, and the predatory bobcat; sea mammals included were sea lion and whale; and the presence of fish vertebrae and bird bones of unidentified species was also noted. In addition to these, perhaps 20 kinds of molluscs were represented among the myriads of shells that made up the site midden, including most prominently the marine mussel, which could be obtained easily nearby.

Late period occupation on the northern coast is best represented at the T-1 Site, located on the Netarts Sand Spit, about seven miles southwest of the town of Tillamook (Newman 1959). The sand spit on which the site is located extends northward from Cape Lookout for approximately six miles, completely protecting the broad, shallow Netarts Bay from the sea except for a narrow channel at its northern end. The bay is noted as a producer of clams, crabs, perch, and flounder, and seals are often observed there as well. At low tide, vast mudflats are exposed, and the archaeological site on the northern end of the spit is ideally situated to take advantage of the shellfishing opportunities.

Prior to excavation a number of depressions encircled by low rings of raised elevation could be observed at the site. Complete excavation of three of these depressions, and partial excavation of two others, showed all five to contain the remains of

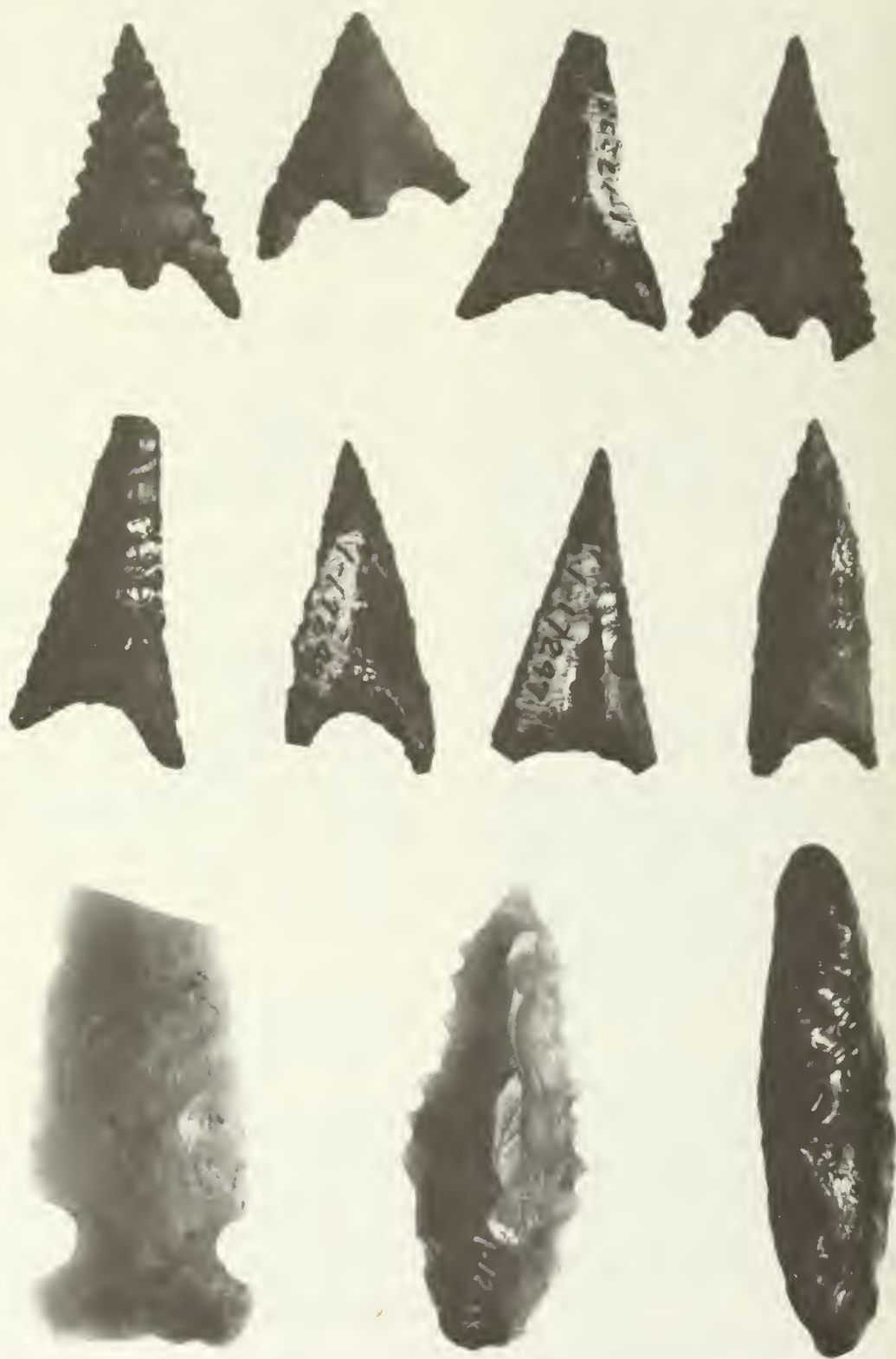


Fig. 4.5 Projectile points from the southern Oregon Coast. Top and middle rows, Late period; Bottom row, Early and Middle periods.



Fig. 4.6 Bifacially flaked stone knives from the southern Oregon Coast.



Fig. 4.7 Scrapers from the southern Oregon Coast.



Fig. 4.8 Bone points, probably from composite harpoon heads, from the southern Oregon Coast.

semisubterranean dwellings. The low elevations surrounding the house pits proved to be accumulations of midden debris, principally discarded marine shells.

The best preserved and most informative structure was a long, rectangular house that had been built in a large pit excavated a short distance into the sandy surface of the spit. The floor area, which was outlined by the rotted but still visible stumps of vertically set posts, measured 52 by 15 feet. Around its edges were found the remains of split cedar planks, some of them up to 15 feet long, which had been laid up horizontally against the wall and roof support posts to form the structure's walls. Because there were no evident gable support posts at the ends of the building, and because of its relatively narrow width, it is inferred that the house had a shed roof rather than a gabled one. Both types are known from historic houses along the Northwest Coast. Clustered toward either end of the floor were many ash-and-charcoal-stained firehearth, nine at each end. These occurred in close groups, and clearly would not all have been used at the same time; many were only casually constructed and obviously not used on a routine basis. A number of postmolds found near the middle of the house were apparently not main structural members, but were

probably erected to support partitions within the building. One other house structure at the site was similar to this one in size as well as mode of construction, while the remaining three were considerably smaller but otherwise generally comparable.

The age of the T-1, or Netarts Site is established by three ^{14}C determinations, and by the occurrence there of historic artifacts. From the lowest occupation level at the site a ^{14}C date of 550 BP was obtained, and from a firepit on the floor of the house just described came a date of 280 BP. The excavator rejects a third date of 150 BP as improbably recent, but some nearly decomposed iron fragments, a copper pendant, and nearly 100 sherds of Chinese porcelain indicate that the site was occupied into the era of White trade, which was well begun along the coast by the 1790's, less than 200 years ago.

Aboriginal artifacts from the site included small arrowpoints like those of the late Multnomah subphases on the Lower Columbia; bone barbs for a composite harpoon; flaked stone scrapers and graters; and digging stick handles, wedges, awls, and needles made from the long bones or antlers of deer and elk. Some fragmentary objects of

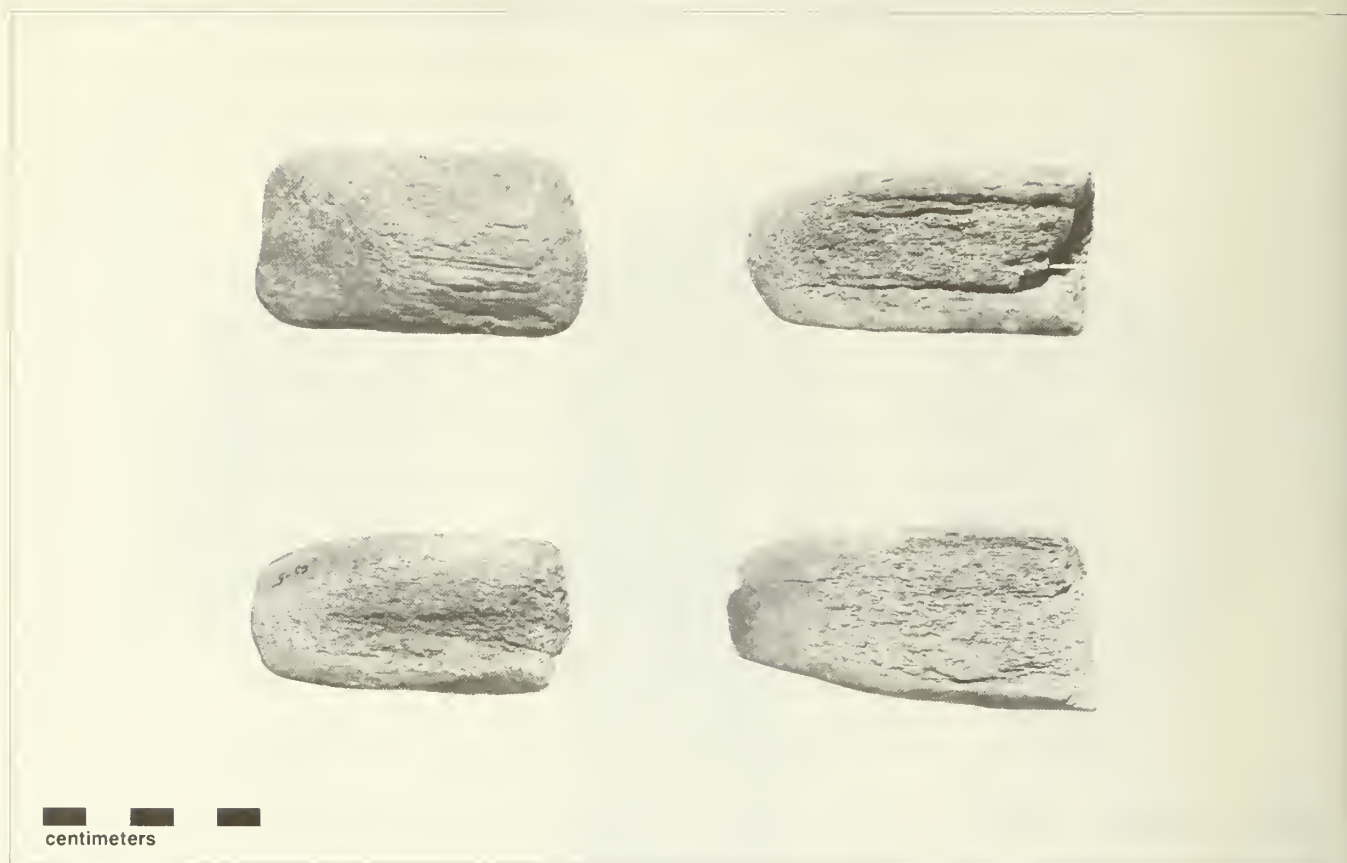


Fig. 4.9 Elk antler and whalebone splitting wedges from the southern Oregon Coast.

whalebone were also found. No faunal remains are reported, beyond the shells of which the midden was composed. Most of the molluscs were blue clam and cockle, with butter clam and bent-nose clam represented in negligible amounts.

A highly sophisticated restudy of the Chinese porcelains from the Netarts excavations has shed interesting new light on their implications. Several lines of technical evidence suggest that they were of Chinese Ming Dynasty or Ch'ing/Quing dynasty manufacture, made sometime between AD 1573 and 1722. This is well before the era of intensive White trade along the Oregon Coast, and the authors suggest the possibility that the specimens might actually have been salvaged by the Indians from the wreckage of an early European merchant vessel—perhaps one of the Spanish galleons on the regular Acapulco-Manila run, which was made annually across the Pacific from 1565 to 1815. The route of the Manila Galleon passed close to the Northwest Coast of North America, and the San Antonio, lost in 1604, or the San Francisco Xavier, lost in either 1705 or 1707 (accounts differ) with “a quantity of porcelain” on board, are two possible bringers of the Netarts porcelains. Other possibilities, including inadvertent transport by derelict Japanese junks, are also treated in this

study, though considered less likely by its authors (Beals and Steele 1981).

Life Style

The archaeological record of the past 2500 to 3000 years along the Lower Columbia and Coast suggests that the basic way of life known historically for the region extends back in time at least that far. The modern environmental configuration, with sea-drowned valleys and long estuaries up which the tide runs far inland, and essentially the modern pattern of plant and animal distribution, seem to have been achieved and stabilized about 3000 years ago. The native cultures, which depended on the natural resources of this environment and were closely adapted to them, seem to reflect the same kind of equilibrium, with basic adaptive strategies and technology already in place by that time persisting little changed thereafter.

Accounts of the historic people show that their annual round was much the same throughout the region; all depended on essentially the same range of plant and animal species and the seasons for exploiting individual kinds were about the same

everywhere, governed by the larger rhythms of nature. Even though a quite noticeable difference in the character of the landscape occurs along the Oregon Coast to the north and south of the Coquille River mouth, with a broader coastal plain and warmer climate to the south contrasting to the drowned coastline and cooler climate toward the north, the seasonal cycles were basically the same, and the people's reliance on the products of nature little different.

An account of the subsistence practices of the Alsea, dwellers of the north-central coast, gives a good picture of activities that were common throughout the region, though it must be recognized that along the Lower Columbia the salmon runs began earlier, and land-hunting and gathering activities were expanded while direct exploitation of the sea was limited to areas around the river mouth itself:

Chinook salmon entered the coastal rivers in midsummer, followed by coho and dog salmon in the early fall. The steelhead trout, which is often grouped with salmon, was an additional sea-run fish prized for its flesh that was taken in the late fall through winter months. Smelt, herring, flounder, perch, and lamprey eels were also harvested as available throughout the year. Clams, mussels, crabs, and sea anemones were collected by the women from estuaries, tide pools, and bays.

Sea mammal hunting was apparently confined to offshore rocks where seals and sea lions congregated; there they were clubbed or harpooned. Whale hunting was considered too dangerous, according to informants interviewed by Drucker (1943), although the occasional beached whale was highly prized for the oil rendered from its blubber.

Although their land was rich in game, the Alsea did not extensively exploit this source of food. Hunting was considered "an adventuresome way of augmenting the fish diet" (Drucker 1943:83), and was not pursued with the same vigor as fishing. Deer and elk were stalked along trails or at small forest clearings, especially during the summer when the animals were in fine flesh. Dogs were occasionally used in the hunt to hold an animal at bay until the hunter was within bowshot. Pitfalls were sometimes excavated to capture elk, a prized game animal, but the time required for preparation of the pits limited their use considerably. Less attention was given to other game, although it is reported that beaver were dug out of dens and clubbed, and that small fur-bearing mammals were shot with the bow. Quail and grouse were caught in basket traps,

and waterfowl were shot. Children used a slip noose to catch seagulls, and seagull and cormorant ("shag") eggs were collected as a food resource.

A wide range of plant foods including roots, greens, berries, fruits, seeds, and nuts gave additional variety to the diet. Camas was dug in great quantities from summer through fall, with the surplus being prepared for winter storage. Roots of plants, such as skunk cabbage and ferns were harvested in the spring. Salmonberries, blackberries, huckleberries, and strawberries, which grew in profusion along the coast, were important food supplements. Each was collected in its proper season, along with various greens. Acorns were also harvested in small quantities back from the coast. Tobacco was grown at sheltered plots away from the village; it was mixed with dried kinnikinnik leaves for smoking. (Minor et al. 1980:86).

Broadly speaking a biseasonal subsistence cycle was practiced by all Northwest Coast cultures. From early spring through fall, village members would be dispersed into small temporary camps established near resource areas, living on what they obtained and processing stores for winter. There were comings and goings between the village and the satellite camps of course, and the main village was probably never wholly abandoned, but its population must have been much depleted at busy times. In late fall through winter the whole populace reassembled in the main village; this was predominantly a time of repairing and manufacturing equipment, with some fishing, hunting, and collecting of shellfish to supplement dwindling winter stores.

Dwellings were very similar in basic construction throughout the region, large houses of wooden planks built within excavated pits. Local styles varied, of course, and size varied according to the number of people to be accommodated, with multiple-family occupation the rule. The early description of Chinook longhouses by Franchère provides a graphic account of this regional house type, though it must be remembered that the relatively great population density and wealth of the Chinooks probably fostered the construction of somewhat larger buildings than were common elsewhere in the coastal zone of Oregon:

Their houses, constructed of cedar, are remarkable for their form and size: some of them are one hundred feet in length by thirty or forty feet in width. They are constructed as follows: An oblong square of the intended size of the building is dug out to the depth of two or three feet; a double row of cedar posts is driven into the earth about ten feet apart; between

these the planks are laid, overlapping each other to the requisite height. The roof is formed by a ridgepole laid on taller posts, notched to receive it, and is constructed with rafters and planks laid clapboard-wise, and secured by cords for want of nails. When the house is designed for several families, there is a door for each, and a separate fireplace; the smoke escapes through an aperture formed by removing one of the boards of the roof. The door is low, of an oval shape, and is provided with a ladder, cut out of a log, to descend into the lodge. The entrance is generally effected sternforemost (Franchere 1967:247-248).

The historic accounts all agree that the native settlements practiced a high degree of local autonomy. Each major village and its satellites was politically independent of all others, and while there was naturally intercourse between settlements for trade and other purposes, there was no overarching organization of authority. Relations between villages essentially were maintained as relations between separate nations, with recognition of common interests and the formation of alliances through trade relationships and marriage.

Similarities in material artifacts, as well as in environment, link present and past cultures. The principal archaeological types known were named earlier in this chapter. The inventory of tools and equipment used by the historic people, which includes many items of perishable material not often found archaeologically, is large, and there is clear similarity if not identity between the types which have survived from the past and types in use historically: hunting tools, fishing tools, woodworking tools, and objects of ornamentation and ceremony all attest continuity between past and present.

Problems

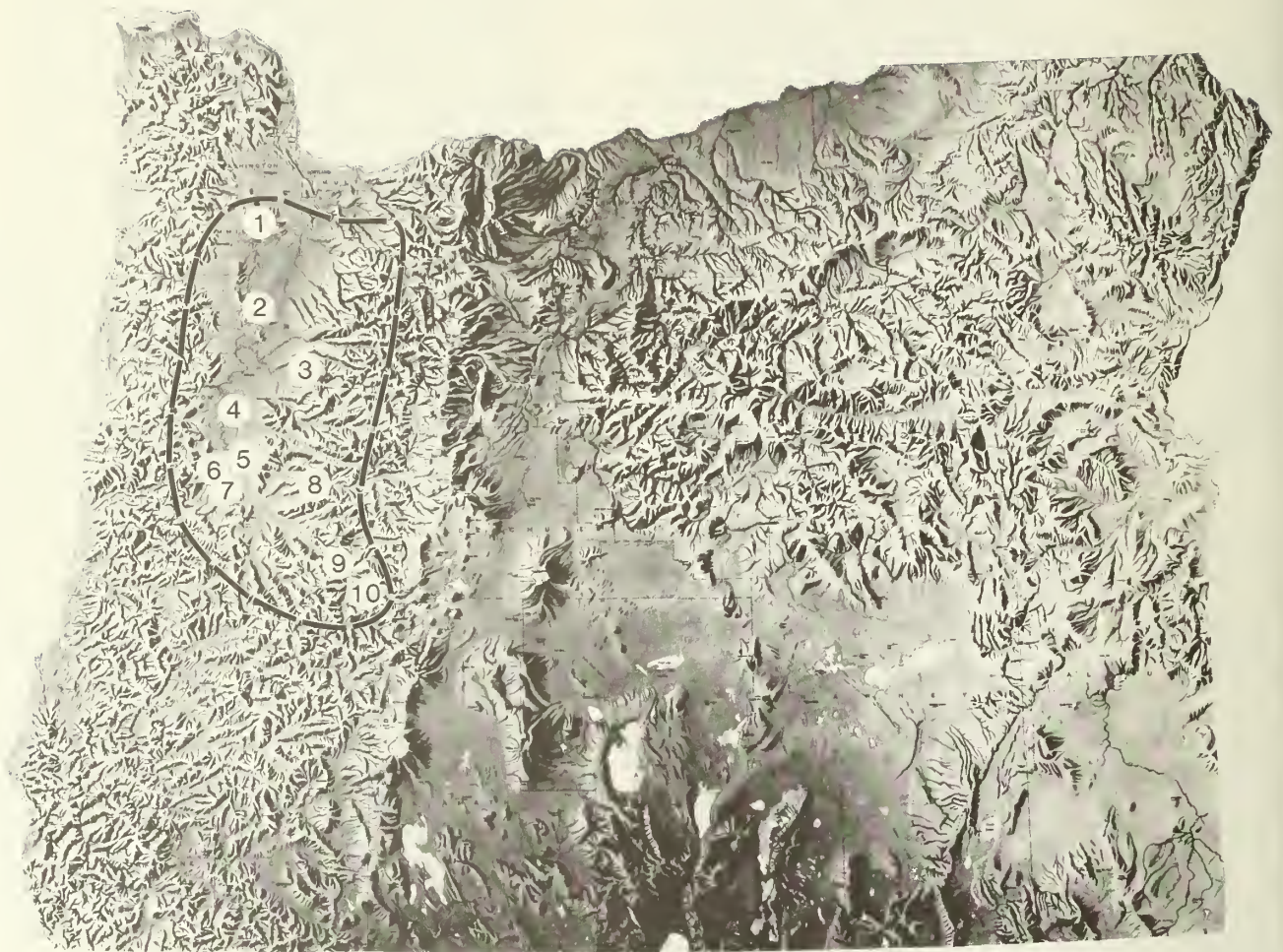
The stress placed throughout this chapter on the essential continuity between past and present cultures is warranted by the similarities in choice of environmental setting and in artifact typology of both prehistoric and historic cultures. But it must be emphasized again, as in earlier chapters, that it is easier to recognize similarities or dissimilarities between past and present in the material culture sphere than in the sphere of societal organization. This caveat has particular force in western Oregon, because the native peoples described by Lewis and Clark and other early Euro-American travelers were disastrously stricken by measles, smallpox, and other White man's diseases, and their numbers dreadfully reduced, even before the time of the earliest historic descriptions of the native lifeway.

This kind of disruption would have had little effect on the elements of material culture, technology, and interaction with the natural environment focused on in the present account, but it is possible that more complex systems of societal organization existed in pre-White times than have been implied by the preceding discussion. Archaeological information so far available is still far too limited to allow evaluation of this possibility from actual prehistoric evidence, though the picture should become clearer as more research is carried out.

Another realm of uncertainty is the matter of pre-3000 BP occupation along the coast and Lower Columbia. Evidence of human presence at least as far back as 10,000 BP, and probably before that, is sufficiently widespread in the Northwest (and on the continent as a whole) as to leave little doubt that Native Americans were by then established in all major areas. At Ground Hog Bay and Namu, on the coasts of Alaska and British Columbia, where rising of the land has kept pace with the rising of the sea, evidence of coastal occupation predates 9000 BP (Dumond 1983).

In the case of Oregon, postglacial rise in sea level is clearly implicated as the reason for a lack of evidence of earlier occupation along the Pacific shore. Future archaeological research in the region will have to attend to this archaeological fact of life by searching for evidence of earlier occupation at higher elevations in the coastal interior. If the occupation pattern historically known for the coast reached back well beyond the date of coastal submergence, this evidence will prove difficult to find, for it will probably consist only of the remains of small, relatively unimpressive sites that were mere seasonal satellites of the main settlements. On the other hand, it need not, and should not be assumed that only the historically-known pattern of life was possible in this region; a sufficient sample of earlier evidence might reveal something else.

There may also be a future for underwater archaeology on the Oregon coast. With adequate underwater maps, diving archaeologists armed with a knowledge of factors governing historic village site location may be able to directly test the hypothesis that similar villages occupied similar locations long ago: if they did, the stone tools of their occupants should still be there, awaiting discovery.



Key to Sites

- 1-Fuller and Fanning Mounds
- 2-Hager's Grove
- 3-Cascadia Cave
- 4-Lynch
- 5-Hurd
- 6-Benjamin
- 7-Flanagan
- 8-Mohawk River Clovis Point Find
- 9-Baby Rock Shelter
- 10-Rigdon's Horsepasture Cave

Fig. 5.1 Map of the Willamette Valley region of Oregon showing site locations.

Chapter 5

Willamette Valley

The Willamette Valley shares a common border with each of the other major archaeological regions of Oregon. The Great Basin and Plateau lie to the east and northeast, across the Cascades; the Lower Columbia and Coast lie to the north and west; and the Southwestern Mountains lie to the south (Fig. 5.1). The Willamette Valley is uniquely a grassland zone, a broad expanse of well-watered open country flanked by wooded hills, that has no ecological parallel elsewhere in the Northwest.

The historic natives of the region, who all spoke languages belonging to the Kalapuyan family, formed a number of small, independent groups: in the north end of the valley lived the Tualatin, Yamhill, and Pudding River bands; centrally located were the Luckiamute, Santiam, Mary's River, Muddy Creek, and Tsankupi bands; and in the upper valley were the Long Tom, Chafan, Mohawk, Winefelly, and Yoncalla bands. East of the valley, the Molalla (a separate linguistic group) occupied the Cascades from about Oregon City in the north to Crater Lake in the south. How far back in time the historic pattern of life might extend is the subject of continuing research, but human occupancy of the region probably dates back 11,000 years or more, and is quite firmly demonstrated as exceeding at least 7,000 years (Aikens 1975).

Time and Environmental Change

Geological evidence indicates that in Late glacial times, one, at least, of the catastrophic floods fed by Glacial Lake Missoula in the headwaters of the Columbia (see Plateau chapter) surged up the Willamette Valley. This awesome flood left deposits of silt, as well as rocks that had been embedded in glacial ice carried by the floodwaters, as far south up the valley as modern Harrisburg. Also, throughout postglacial time the valley has been routinely subjected to local flooding of the Willamette and its tributaries, which has laid down thick alluvial deposits along all the floodplains (Baldwin 1976).

This geological record, of course, has implications for the preservation and recovery of archaeological evidence for human activity. Major areas of the valley floor, especially in the south, are geologically very recent, and cannot be expected to yield evidence of really early humans, unless it is fortuitously exposed in deep natural or man-made cuts. The geomorphology of the region has been, and will continue to be, of great importance to prehistoric cultural investigations. Ten major geomorphic formations have been defined. In order of decreasing age; the Looney, Eola, Dolph, Quad, Calapooyia, Senecal, Champoege, Winkle, Ingram, and Horseshoe units (Balster and Parsons 1968). The Horseshoe unit represents the currently active modern river floodplain. The Ingram unit is assigned an age between about 550 and 3300 BP,

while the next older Winkle unit appears to range in age from about 5250 BP near its surface to sometime near 34,400 BP at its base. These assessments are based on ^{14}C determinations. Clearly there is great potential for cultural remains to exist within the Ingram and Winkle alluvium, which between them more than span the time that human beings are known to have been in the New World. But only the more recent cultural manifestations, dating after approximately 5000 BP, are likely to be detectable on the modern surface. Earlier remains on the valley floor lie deeply buried in sediments deposited by the continual flooding to which the valley has long been subject.

The older geomorphic surfaces preserved along the edges of the valley, because they have not been subjected to flooding and heavy deposition since the river cut itself down below their level ages ago, are much more likely to bear ancient remains on or near their surfaces, where there is reasonable prospect of their being discovered for archaeological study. This geological situation challenges future researchers to attend closely to geomorphology in seeking to expand our knowledge of the more ancient, scarcely known reaches of human time in the region.

Postglacial climatic regimes in the Willamette Valley are known from studies of fossil pollen taken from the peats and sediments of Onion Flat and Lake Labish near Salem (Hansen 1942, 1947). Pollen counts showed that after the peak of the last glaciation, the local climate shifted from a cool, wet regime to one that was markedly warmer and dryer. The early postglacial period, between about 9000 and 7000 BP, was a time of transition, when white pine and Sitka spruce, trees which thrive under cool, moist conditions, declined in numbers. By 4000 BP there had been further decline in the abundance of cool-climate species, and an increase in Douglas-fir and ponderosa pine; the latter especially is a tree that does well in relatively warm, arid situations. The white oak, which does best under relatively warm/dry conditions, reached a maximum during this latter interval. After about 4000 BP the climate turned somewhat cooler and moister, leading to establishment of the forest patterns seen around and in the valley today, with Douglas-fir and some ponderosa pine on the surrounding hills, and oak and other deciduous species on the valley floor.

Readers will recognize in this sequence the same basic trends previously noted for other parts of Oregon; in fact, these local fluctuations belong to a pattern of world-wide climatic change during postglacial times. The degree to which these climatic changes affected the lives of prehistoric Willamette Valley peoples remains to be determined, but to the extent that they affected

vegetational distributions they would surely have had some influence on human occupation patterns. This remains an area of concern for future research.

Environment and Human Settlement

The open Willamette Valley, with its cover of wild grasses, extensive stands of camas lilies, and scattered oak trees and groves, produced edible seeds, bulbs, and acorns in great quantity. The many localities in the region that have been given the name "camas swale" are one indication of the former abundance of a resource that has largely disappeared under modern cultivation and stock grazing, but which manifestly was of extreme importance to the native people. The oak trees have suffered a similar fate; though both camas and oak remain characteristic of the valley vegetation today, their present rather meager occurrence should not be mistaken as representative of aboriginal conditions. Bottomland plant communities along the valley's streams contained other species which also produced edible or otherwise usable parts, including hazelnut, Oregon grape, salmonberry, elderberry, hardhack, and ninebark.

Historic accounts show that the Willamette Valley Indians regularly burned the grasslands; it is believed by some biogeographers, in fact, that the Willamette Valley would have been invaded and covered by forest had this not been an ancient practice, maintained from time immemorial (Johannessen et al. 1971). The English botanist David Douglas, whose name has been given to the Douglas-fir, travelled the valley in 1826 and related that great burned expanses were to be widely seen. The study of charred growth rings embedded in old trees has given evidence of repeated burnings in the valley over the period of 296 years spanned by the trees examined, which lived between 1647 and 1943. A dramatic drop in the frequency of burning after 1848 coincided with the arrival of White immigrants and their suppression of the native population. This supports the inference that the earlier fires had indeed been set by natives (Sprague and Hansen 1946). Such burning would have promoted the growth of important seed-producing grasses, kept the streamside forests clear of heavy underbrush, and facilitated deer and elk-hunting activities by keeping the country relatively open.

Additional resources were provided by the slack-water sloughs and marshes common in the valley. The region is traversed by the Pacific Migratory Flyway, which annually brought huge numbers of ducks, geese, swans, and other waterbirds to

overwinter and breed in the mild climate. Grouse, quail, pigeons, and doves were other avian species of importance, local residents available the year around. This once-abundant resource too has all but vanished.

The edges of the valley, and the mountains behind, held yet other resources. Both the Cascades to the east and the Coast Range to the west were densely covered with Douglas-fir. Mature stands of coniferous forest are not notably rich in edible life forms, but along stream bottoms, in burned-off areas, and around lakes and bogs in these mountains, there were to be found salmonberry, elderberry, huckleberry, and an abundance of woodland game: elk, deer, black bear, grizzly bear, beaver, raccoon, and squirrel were just a few of the mammalian species available.

Willamette Falls, a few miles up the Willamette River from its confluence with the Columbia at Portland, was a fishery of great importance, which annually attracted large numbers of people from both the Lower Columbia and Lower Willamette Valleys. Salmon also ascended the falls to reach the upper valley, as described by an early White visitor who observed the spring run in June, 1841:

The salmon leap the fall; and it would be inconceivable, if not actually witnessed, how they can force themselves up, and after a leap of from ten to twelve feet retain strength enough to stem the force of the water above. About one in ten of these who jumped would succeed in getting by . . . (Wilkes 1845, quoted in Minor et al. 1981:58).

As the above sketch suggests, the Willamette Valley environment, though productive and varied, offered its natural largesse widely dispersed over a broad area, rather than concentrated in a compact, transcendently rich, and easily exploitable zone as did, for example, the Lower Columbia region. The human population of the valley apparently adapted to this reality by developing a rather dispersed pattern of settlement and a comparatively mobile society.

Cultural Chronology and Time Markers

The earliest definitive artifact type known from the Willamette Valley is, as elsewhere in Oregon, the Clovis fluted spearpoint. Rare specimens have been reported as casual surface finds. Though none have been directly dated in the Willamette Valley itself, the age range of the Clovis type as known from elsewhere in the United States is about 11,500 to 11,000 BP, and the same age may be attributed to the local finds. Points of the slightly later Windust

type have not been reported for the Willamette Valley, but in view of their occurrence east of the Cascades, and in southwestern Washington, it seems likely that they may yet be found in western Oregon as well. Windust points have been ¹⁴C dated between about 8000 and 10,000 BP on the Plateau, and presumably would represent the same time period if recovered in the Willamette Valley.

An Early Archaic occupation follows the preceding scantily attested Paleo-Indian period (Beckham, Minor, and Toepel 1981). Characteristic of the Early Archaic is the willow-leaf-shaped Cascade point, which has been ¹⁴C dated to nearly 8000 BP. Toward the end of this period there appeared large, thick, side-notched points reminiscent of the Northern Side-notched type from the Plateau and Great Basin.

The Middle Archaic is ¹⁴C dated after about 5000 BP. Large points similar to the Northern Side-notched type, and large stemmed points, are characteristic of this period. These points appear to have been made for use with the atlatl and dart, observed elsewhere in Oregon to be associated with specimens of similar size and shape.

Finally, the Late Archaic seems to have begun around the beginning of the Christian era, about 2000 BP. Small triangular and stemmed arrow points are abundantly attested in the region after about 1800 BP, and indications are that they began to appear several hundred years before that time. The same styles were made into the historic period, when they appear in some sites along with metal tools and glass trade beads indicative of the first White contacts (Fig. 5.2).

The same stylistic patterns in projectile point types that afford markers of temporal periods also offer clues to the cultural affiliations and contacts of their makers. In the case of the Willamette Valley, the styles and their sequence of change, as well as the dates assigned to them, all reflect relatively close ties to the cultures of the Columbia Plateau—closer, at any rate than to those of the Great Basin.

Major Sites

A large Clovis fluted point, its edges battered and rounded as if by water transport in a rocky stream, was picked up from the surface of gravels along the Mohawk River, near Springfield, in 1959 (Allely 1975). It is a classic example of the Clovis type, and granting that it seems authentically associated with the Mohawk River gravels, it indicates human presence in the area most probably during the interval 11,500 to 11,000 BP, to which Clovis points have been ¹⁴C dated elsewhere. Another Clovis point, said to have been found near Cottage Grove

Fig. 5.2 Projectile points from the Willamette Valley, Oregon. Top row, Late period; middle row, Middle period; bottom row, Early period. All from Hager's Grove site.



in 1935, was donated to the Oregon State Museum of Anthropology. There also exists a report of two large lanceolate spear points found in the side wall of a drainage slough near Templeton along with bones of the now-extinct mammoth, but since the finds were made in 1895 and reported on the basis of memory a half-century later, the association must be regarded as a possibility rather than an established fact (Cressman 1941).

For a somewhat later, but still early period, fuller evidence of human activity in the region comes from Cascadia Cave, located on the South Santiam River in the low Cascades a few miles east of the Willamette Valley (Newman 1966). Cascadia Cave was found upon excavation to contain from 9 to 12 feet of windblown earth overlying its bedrock floor. Throughout this fill were discovered flaked and

ground stone artifacts that gave evidence of repeated visitations over a long period of time. A ^{14}C date of 7900 BP pertains to the earliest occupation, and it is believed that major use of the site had ended by about 6000 BP. Projectile points of types known to date after that time were not recovered from Cascadia Cave, although it is possible that deposits containing such later artifacts were removed by looters whose pits had largely destroyed the upper levels of the site.

The human occupants of the site left behind many leaf-shaped Cascade type points of obsidian; these were especially common in the earlier levels. They remained so down to about 6000 BP, although by then large side-notched points had also become common. All these points were of quite large size, probably used to tip darts hurled with the spear-

Fig. 5.3 Projectile points from Rigdon's Horse Pasture Cave. Top row, late prehistoric Desert Side-notched points; middle row, Late period points typical of the Willamette Valley; bottom row, Middle period points typical of the Willamette Valley.



thrower, or atlatl; the bow and arrow had not yet made its appearance in the west at the time of the Cascadia Cave occupation. Knives, scrapers, and use-modified flakes were common, no doubt used in butchering and skinning the deer brought down with stone-tipped projectiles. The bones of deer were found in every level of the Cascadia excavations, and elk, snowshoe rabbit, and marmot bones also appeared, although scantily. Hazelnuts found at one spot during the excavations indicate the gathering of vegetal foods. A dozen or so hand grinding stones, or manos, show that vegetal foods such as nuts and seeds were crushed and milled at the site. Occupation probably took place during late summer, as indicated by the occurrence of hazelnuts and seed-grinding implements, and by the lack of bones from young, immature deer.

A comparable early occupation is known from Baby Rock Shelter, near Oakridge on the Middle Fork of the Willamette River (Olsen 1975). At this site, badly disturbed by artifact collectors, a number of artifacts were found, some of them beneath a layer of volcanic ash from the ancient Mount Mazama eruption that created present-day Crater Lake. This eruption has been dated at about 7000 BP (Kittleman 1973), and the artifacts found beneath the volcanic ash are thus clearly older than that event. Notched projectile points, knives, scrapers, perforators and gravers appear to represent hunting and hide working, while choppers, mauls, manos, and milling stone fragments suggest vegetal food processing. No ^{14}C dates are available for Baby Rock Shelter, but projectile point types suggest that its occupation overlaps Cascadia Cave, mentioned

Fig. 5.4 Basketry fragments from Rigdon's Horse Pasture Cave.



above, and Rigdon's Horse Pasture Cave, next to be described.

Rigdon's Horse Pasture Cave has been ¹⁴C dated between 2500 and 200 BP (Baxter et al. 1983). Rock-lined firehearths, oven-like cooking features, and storage pits occur in the deposits, while a considerable quantity of bone, dominated by deer remains, indicates that hunting was important there throughout the time the site was occupied. Large side-notched dart points like those from Cascadia Cave are the earliest type found at Horse Pasture Cave; they are succeeded by smaller stemmed and corner-notched arrowpoints, and finally by a series of very small arrowpoints of the Desert Side-notched type, which is common in the Great Basin region, but extremely rare in the Willamette Valley (Fig. 5.3). Many knives, scrapers, and flake tools

complement the projectile point assemblage and give evidence of the butchering and hide-processing activities characteristic of a hunting camp. A very limited assemblage of ground stone tools suggests that plant food processing was of only minor importance there.

A few fragments of basketry and plant-fiber cordage from the dryer upper levels of Horse Pasture Cave suggest the earlier presence also of artifacts made of perishable materials, long since decomposed in the damp lower deposits of the site (Fig. 5.4). Finally, blue and white glass trade beads, and tubular beads of rolled sheet copper from the very topmost levels of the cave indicate that the aboriginal occupation continued into the time of early White incursions into the Northwest, probably some time in the 19th century.

As noted earlier, the repeated flooding to which the Willamette Valley floor was subject prior to the building of modern flood-control projects has deeply buried the earliest human occupation levels in much of the region, but a few sites dating to the Early Archaic period are known there, and sites belonging to the Middle and Late Archaic have been discovered in some numbers. The Hager's Grove Site near Salem, and the Flanagan, Benjamin, and Hurd sites west and north of Eugene, well illustrate current knowledge about the middle and late periods of occupation in the valley, when the basic pattern of native life known from historic records was becoming established.

Hager's Grove occupies a relatively flat portion of the central Willamette Valley floor, and is associated with meandering stream channels which probably supplied water to the ancient occupants (Pettigrew 1980b). Oaks and other trees, and heavy brush, occur along the streams, and the wooded area is in turn surrounded by open grassland. It seems likely that a similar situation prevailed at the time of the aboriginal occupation. Two locations were excavated in Hager's Grove, both of which produced numerous stone artifacts associated with a series of charcoal-filled firehearths and apparent earth ovens. Artifact-strewn occupation surfaces were located, but no dwelling structures were discovered. Charcoal from fire features at location MA7 yielded ^{14}C dates of 3800, 2900, 2700, and 1200 BP, while similar features from location MA9 produced dates of 3700, 1200, 1100, and 400 BP. It is thus clear that human use of Hager's Grove spanned a great length of time—nearly 3500 years—but was episodic, with long periods of abandonment between occupations.

Projectile points characteristic of the earliest occupation were fairly large, leaf-shaped specimens, and associated with them were large stemmed and occasionally side-notched points. These were probably used with the atlatl and dart. They were succeeded, after about 2500 BP, by smaller points with narrow stems, which were clearly used to tip arrows. Many of the types represented at Hager's Grove were also present in the Horse Pasture Cave Site previously mentioned, although the early large side-notched type from Horse Pasture Cave seems to be lacking at the somewhat later Hager's Grove sites. Other specimens from Hager's Grove include biface knives, scrapers, drills, and use-modified flakes, as well as large unifacially flaked cobbles. A single well-made mortar shaped from a large piece of vesicular basalt was also found there.

The flaked stone tools indicate the importance of hunting, while the mortar and the earth oven features document the gathering and processing of plant foods. Found among the remains of the earth oven features were a number of charred camas

bulbs, hazelnuts, and acorns, along with rare examples of other species. In all, the archaeological collections, as well as the geographical setting, indicate that Hager's Grove served as a seasonal camp where game—probably deer and smaller forms—was hunted and plant foods collected during a few weeks of the year. This was probably during midsummer and fall, when camas, acorns, and hazelnuts would all have been at a harvestable stage together. The people seem not to have erected substantial structures, and perhaps they camped in the open during the short summer season of fine weather. Although there were some changes in artifact styles over the period of occupation, and the bow and arrow replaced the atlatl and dart during that span, there seem to have been no fundamental changes in the character of human activity at Hager's Grove over nearly 3500 years of time.

The Flanagan Site, located next to an old stream meander channel on the floor of the Upper Willamette Valley west of Eugene, gives evidence of intermittent seasonal occupation from nearly 6000 BP down to late prehistoric times. Over a dozen ^{14}C dates on charcoal from the three-foot-deep site deposits cluster around 5700, 3300, 1800, 900, and 500 BP (Toepel and Minor 1980; Beckham, Minor, and Toepel 1981). The dates make this site the oldest known at present from the valley floor setting, placing its first occupation nearly 2000 years earlier than that at Hager's Grove.

The Flanagan artifact assemblage was similar to, but somewhat more varied than that from Hager's Grove; only a single leaf-shaped point comparable to the early Hager's Grove specimens was found, but large side-notched, corner-notched, and stemmed dart points like those from the latter site were common. Small, stemmed triangular arrowpoints of comparable types were also very well represented. Other tools probably used in butchering and hide processing were biface knives, scrapers, perforators, and use-modified flakes. Wood and bone working are suggested by the finding of hammerstones, choppers, drills, spokeshaves, and a grooved sandstone abradar that might have served to smooth down arrowshafts or comparable artifacts. Stone tool manufacture seems to be attested by the finding of many exhausted stone cores from which flakes might be struck for shaping into finished artifacts. Other indicators were battered hammerstones which might have been used to strike off such flakes, roughly shaped bifaces which may have been unfinished "preforms" for projectile points, and abundant stone chips from the flaking process.

Other activities were carried out at the Flanagan Site as well. The excavations revealed great quantities of fire-cracked stream cobbles and

charcoal fragments, that had obviously been raked out of roasting pits once filled with vegetal foods and heated stones. Several actual pits, measuring from three to six feet across, were found, as were a few charred vegetal specimens that have tentatively been identified as bulbs of the camas lily. The low-lying terrain around the site, saturated by the spring and early summer floods that were endemic to the valley before modern dams were built, no doubt supported camas lilies in great abundance. A few charred acorn hulls, and some pits of wild cherry and Klamath plum, may also represent foods gathered by the site's aboriginal occupants. (Other plant remains recovered from the excavations, notably barley seeds and walnut shells, are of species introduced by White settlers, and obviously mixed into the site as a result of recent disturbances).

The above evidence makes it quite apparent that the Flanagan Site was occupied on a seasonal basis by groups of people who came there in summer to gather plant foods and hunt game such as deer and elk in the woods along the stream where the site lay. The wide range of artifacts suggests that these groups remained on the spot for perhaps some weeks, carrying out various food-processing and tool-manufacturing chores while there. That the site could only have been seasonal, however, is indicated by the lack of house or other shelter remains there, as well as by the fact that heavy seasonal flooding would have made the location completely untenable as a habitation site during the wetter months of the year.

The Benjamin sites include a number of low mounds scattered along old meander channels of the Long Tom River, on the west side of the Willamette Valley near Eugene. Excavations of varying scope were carried out in several of the mounds, and major digging in two of them provided abundant evidence of human activity (Miller 1975). Both mounds rose about 3 feet above the surrounding terrain; one was roughly circular, about 60 feet in diameter, the other ellipsoidal, measuring about 50 by 100 feet. No house remains were found in either site, but in both there was much fire-cracked rock, fire-reddened earth, and charcoal, which related to many small firehearthths and large earth ovens. Some of the latter measured as much as two feet in depth and five feet across. Charred camas bulbs were recovered from these features, making clear their function as camas roasting pits. Two ^{14}C dates on charred bulbs from these features, of 2300 and 1600 BP, place part of the occupation in time, but the projectile point types from the sites suggest that human use began earlier, and continued later, than these dates indicate. In fact, to judge from the artifacts, the Benjamin sites were probably occupied through

about the same range of time as was the Flanagan Site.

As at Flanagan and Hager's Grove, the earliest projectile point types were large leaf-shaped specimens, and large triangular stemmed, corner-notched, and side-notched dart points. Later arrowpoints were the familiar small stemmed and unstemmed varieties described for sites previously mentioned. The number of projectile points recovered—nearly 250—suggests that hunting was of considerable importance at the Benjamin sites. Flaked stone scrapers, retouched flakes, choppers, and biface knives were also well-represented, demonstrating the prevalence of butchering and hide-processing activities normally associated with hunting.

Plant food gathering and processing was a major focus of attention, as demonstrated by the already-mentioned earth ovens and charred camas bulbs found within them. Additional evidence comes from mortar and pestle fragments; these probably served in the cracking and grinding of hard-shelled nuts such as the acorn and hazelnut, although no direct evidence of these species was found in the sites.

Again, the Benjamin sites appear to represent only seasonal use. During the summer when camas would have been available in the low, wet lands beside the Long Tom River, and the spring floods had subsided, groups apparently came year after year to the same spots to camp and exploit the local resources. The lack of any evidence of structural remains suggests that during this period of sunny weather, the people camped in the open, or used only the simplest and most perishable temporary shelters.

The Hurd Site, near Coburg, offers a contrast to the summer-season sites so far mentioned (White 1975). The remains of a partly underground house structure found there, the site's location on higher ground, and its distinctive artifact assemblage, all suggest that the Hurd Site was a more permanent, wet-season settlement. The site is situated on the forward edge of a terrace known to geomorphologists as the Winkle surface, overlooking a lower flood plain through which the McKenzie River flows toward its confluence with the Willamette, several miles west of the site. Though the difference in relief between the two land surfaces is only a few feet, it was apparently enough that the Winkle surface, where the Hurd Site occurred, was above the level of serious flooding. A ^{14}C assay on charcoal from a firehearth in the house structure at the site gave a date of 2800 BP, and another date of 2820 BP came from a second hearth intruded into the house pit. These are the earliest cultural features; in addition, a cluster of eleven ^{14}C dates on charcoal from various

firehearth and earth ovens elsewhere in the site indicates a second major period of occupation extending from 1100 BP to late prehistoric times.

The house structure was oval in plan, its earthen floor measuring about 16 by 23 feet across. The floor had been levelled by excavating the previously existing ground surface to some extent, and was defined by the outlines of a large, shallow pit a few inches in depth. Within these boundaries, but not quite in the center of the floor, a tight cluster of cobbles and charcoal represented a firehearth about three feet across. It was this feature from which the 2800 BP date came. A number of small pits, probably post-holes, were associated with the structure; three occurred immediately outside its northern edge, and three more were found within the house pit along its northern edge. Another such pit was found near the firehearth. These small pits do not add up to any obvious and complete pattern of wall and roof support post-holes for the entire house, but if the superstructure was of fairly light construction, some of its fainter traces might have been obliterated by the passage of time or missed in excavation. The shallowness of the house pit, and lack of evidence for really substantial support timbers, suggests that the building may have resembled the semiconical grass-thatched lodges of historic Willamette Valley peoples rather than their more substantial long rectangular houses with sunken floors and bark-shingled roofs.

No house structure was identified for the later occupation, cultural features consisting instead of many large and small earth ovens and fire hearths. It has been suggested that in the later period the Hurd Site served as a seasonal summer encampment rather than as a base settlement (White 1975), but the artifact assemblage from the site as a whole is so much more varied than that found at other seasonal camps as to suggest that Hurd also functioned as a central base settlement during its later occupational phase. The lack of house remains assignable to the later period may reflect only the limitations of the archaeological excavation.

The importance of hunting at the Hurd Site is documented by the recovery of over 400 projectile points from the excavations. The assemblage was similar to that found at the Flanagan and Benjamin sites, except that early leaf-shaped and large stemmed and side-notched dart points were extremely rare. Smaller triangular stemmed and corner-notched arrowpoints, like those from later phases of the other sites mentioned, dominated the Hurd Site collection. Scrapers, flake knives, and utilized flakes in large numbers no doubt represent associated hide processing.

An extensive and varied series of large scrapers, graters, reamers, choppers, scraper planes, drills, abrading stones, and denticulate tools were probably used in the manufacture of wooden objects, and perhaps in the working of bone as well (Figs. 5.5-5.8). An abundance of flakes of varying size and degree of modification indicate the on-site manufacture of stone tools, and a number of battered hammerstones were found that may have been used in the lithic reduction process.

The importance of vegetal foods at the site is attested particularly for the later period of occupation, not only by the abundance of earth ovens already mentioned, but also by the finding of a number of charred camas bulbs, and by pestles and mortar fragments (Figs. 5.9, 5.10). These latter tools were very rare, but this is perhaps not surprising; a great deal of work went into their manufacture, and they would not be lost or discarded lightly.

Finally, the interpretation of the Hurd Site as a stable central base settlement is bolstered by the facts of its broader context. Not only is it on high enough ground to be safe from all but unusual flooding, but it lies at the base of the Coburg Hills, an outlier of the western Cascades. This places it in a situation from which its occupants could exploit conveniently and at relatively short range both valley floor and montane settings on various kinds of hunting and gathering missions, targeting the natural resources of different environmental zones without having to traverse any major distances.

The final phase of aboriginal occupation in the Willamette Valley is best represented by the Fuller and Fanning mounds. These two sites, considered together because of their nearly identical artifact assemblages, are located about six miles apart from one another on the Yamhill River a few miles southwest of McMinnville. Both sites were of considerable extent, the Fuller mound measuring some 80 by 120 feet across, the Fanning mound some 120 by 180 feet. Both also varied between about three and five feet in depth. These sites were excavated in the early 1940's before the development of ¹⁴C dating, and they have never been precisely fixed in time. Nevertheless, it is known from the occurrence there of Euro-American trade goods of brass, copper, and glass, that the latest occupation extended into historic times, probably the late 1700's or early 1800's. Such artifacts were very few, however, and the bulk of the specimens were of prehistoric native types. Comparison of these types, particularly the projectile points, with specimens from other sites dated by the ¹⁴C method, suggests that the Fuller and Fanning mounds were probably occupied throughout the Late Archaic period, from about

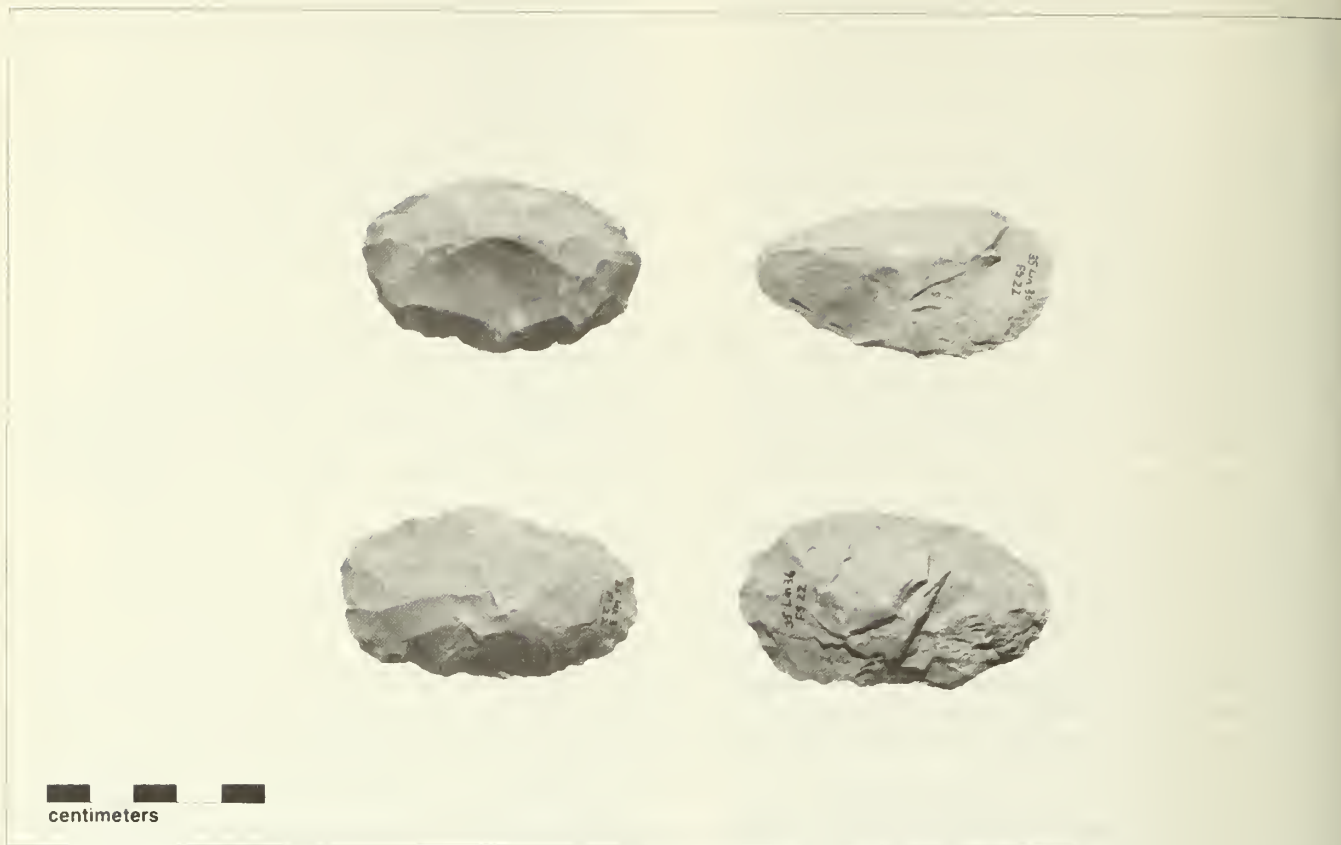


Fig. 5.5 Basalt bifaces from the Lynch Site.



Fig. 5.6 Heavy pointed tools from the Hurd Site.



Fig. 5.7 Heavy uniface chopping tools from the Hurd Site.



Fig. 5.8 Uniface chopper and shaped pestle from the Hurd Site.



Fig. 5.9 Stone bowl from the Willamette Valley.

Fig. 5.10 Charred camas bulbs from an earth oven.



2000 BP onward (Laughlin 1943; Murdy and Wentz 1975; Woodward, Murdy, and Young 1975).

Like the Hurd Site, the Fuller and Fanning mounds were probably stable residential locations. Although no evidence of house structures was recovered, both sites contained many human burials, and a wide variety of artifact types. These facts suggest that occupation must have been relatively stable, that the sites must have represented "home" to their inhabitants. Domestic refuse consisted of much evidence of firehearth and fire-cracked rock. The lack of any reported evidence for house structures at the sites may well reflect no more than the fact that the excavations were carried out by untrained local collectors, who could easily have failed to observe the subtle clues that would lead to the recognition of collapsed and decayed dwellings.

The projectile points recovered from the two sites numbered in the hundreds. They comprise a remarkably uniform collection, being almost exclusively small triangular arrowpoints, either corner-notched or stemmed at the base. In type, they are very similar to the points from other Late Archaic sites in the Willamette Valley, particularly to the later specimens from the Hurd, Benjamin, and other sites already named. Flaked stone knives and scrapers represent other aspects of the hunting complex, as do bone awls that may have been used in hide-working. Bone points, and pieces that represent parts of composite harpoons or fish-spears, were also represented. Fishing with nets is suggested by the presence of grooved pebbles that may have served as sinkers. The game obtained with this equipment was quite well-represented in

the refuse deposits of the two sites by the bones of elk, deer, beaver, fox, various birds, and fish.

The gathering of wild vegetable foods is also attested, as at other sites, by abundant fragments of fire-cracked rock, probably from earth ovens used in baking camas bulbs. A number of large elk antler tines, perforated at the center, were exact representatives of an artifact type used by historic Columbia Plateau people as handles for camas-digging sticks. That camas was an important staple of the Fuller and Fanning site occupants thus seems assured. Mortars and pestles that could have served to crush or mill wild seeds, acorns, hazelnuts, and other products, were also recovered.

Several tool types indicate that the working of wood into domestic products was another important activity of the villagers. Large, heavy wedges of antler no doubt served in the splitting out of boards or slabs of wood. Flaked stone drills and graters, as well perhaps as some of the bevelled scrapers and knives recovered from the sites, could have served in the shaping and fitting of these pieces. Another industry was the making of stone tools, suggested not only by the abundance of stone tools themselves at the sites, but also by discarded flakes of stone, hammerstones that may have served in initial rough flaking activities, and pointed flaking tools made of antler tines that would have served to put the final touches on lithic artifacts.

Artistic and ceremonial aspects of life were particularly well-represented at the Fuller and Fanning sites by artifacts of both native and White manufacture. A large, beautifully flaked double-ended knife of obsidian is of a type highly prized by the historic Yurok and other Indians of northern California. Two large paddle-shaped "fish clubs" beautifully carved of whalebone are of types best-known from the Columbia River and the coasts of British Columbia in historic times. Shell beads of *Olivella*, *Glycymeris*, and *Haliotis* (abalone), strung as necklaces or bracelets, represent marine species imported from the Pacific coast. White trade goods included a number of brass buttons, some brass finger rings, a brass thimble, some sheet copper that had been rolled into tubular beads, and glass trade beads of several different kinds (Figs. 5.11-5.14).

The richness of the artistic and ceremonial complex from these two sites contrasts markedly with what is known from elsewhere in the Willamette Valley. It is not yet clear whether this richness can simply be attributed to the relative recency of the sites, which allowed the preservation of objects normally lost to gradual decomposition, or whether the Fuller and Fanning mounds may have been home to societies somewhat richer and more complex than those

known from other parts of the valley. Further research will be needed to resolve this question.

Life Style

The lifeway of the native peoples, as it was described in the first historic accounts, provides a model for better understanding the archaeological evidence (Beckham, Minor, and Toepel 1981; Minor et al. 1980; Zenk 1976). In historic times, Kalapuyan-speaking peoples occupied the whole of the Willamette Valley from about Oregon City southward, with the range of one subgroup extending beyond the upper end of the valley into the Upper Umpqua River region. To the east, in the Cascades, lived the Molalla. The basic economic pattern of mobile hunting and gathering that characterized the native groups historically was, of course, governed by the natural resources available in the regional landscape. As the preceding archaeological accounts show, the digging of camas, gathering of wild nuts, and hunting of deer, elk, and other game are attested for the Willamette Valley at least as early as 5000 BP. Evidence from the western Cascades shows that hunting camps were occupied there at least as early as 8000 BP.

A map of individual group territories portrays graphically the close relationship of the people to their natural environment. As Figure 5.15 shows, the Willamette River, flowing down the middle of the valley, separates eastern from western groups. Further, the numerous groups on either side of the river each occupied elongated territories beginning at the river, and extending across the broad open valley floodplain into the foothills of either the Coast Range or the Cascades. This pattern assured each group access to all of the basic geographic zones characteristic of the valley riverine, floodplain, and montane. By moving about within their individual territories on a seasonal basis as specific resources became available, the native people could harvest each zone in turn.

Seasonal alternations gave a natural rhythm to native activities. Fishing was possible, and was pursued, during spring, fall, and winter. The camas harvest in particular, carried out from early to late summer, was a time of gathering roots in great quantity, and pounding them into cakes to be dried and stored for the leaner winter months. Hunting was primarily a fall season activity, though deer, elk, fowl, and smaller animals were present, and taken to some extent, the year around. The gathering of a wide variety of seeds, berries, and other plant foods went on throughout the summer and early fall.

Residential patterns were related to these cycles, and to the attendant weather conditions. In the busy



Fig. 5.11 Necklace from Fuller Mound made up of *Olivella* and butter clam shells from the Oregon coast, sheet copper bangles, and a brass button.

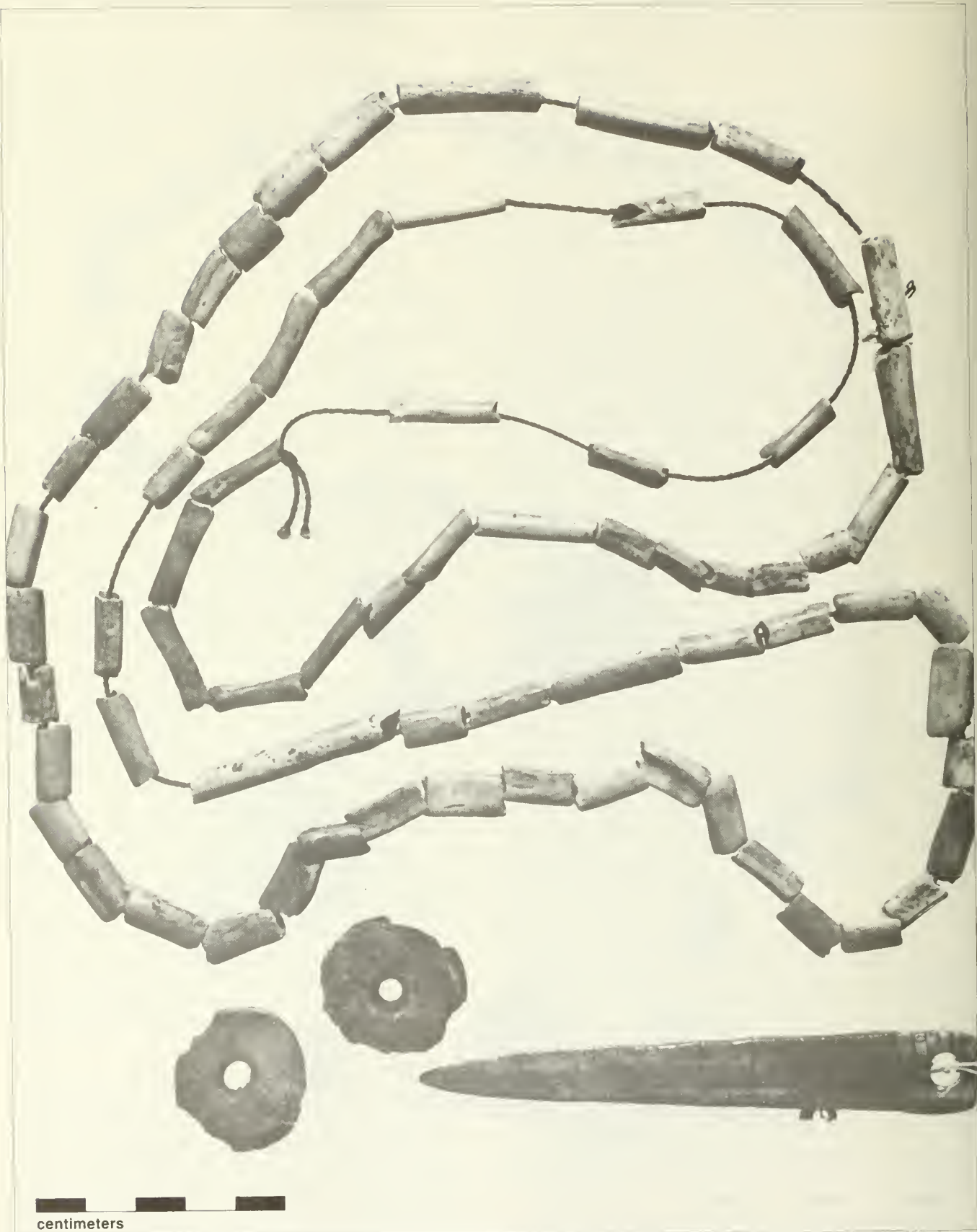


Fig. 5.12 Bone artifacts from Fuller Mound. Top, necklace of cut and polished bird bone beads; lower left, bone earspools; lower right, incised bone pendant.



Fig. 5.13 Whalebone club from Fuller Mound.

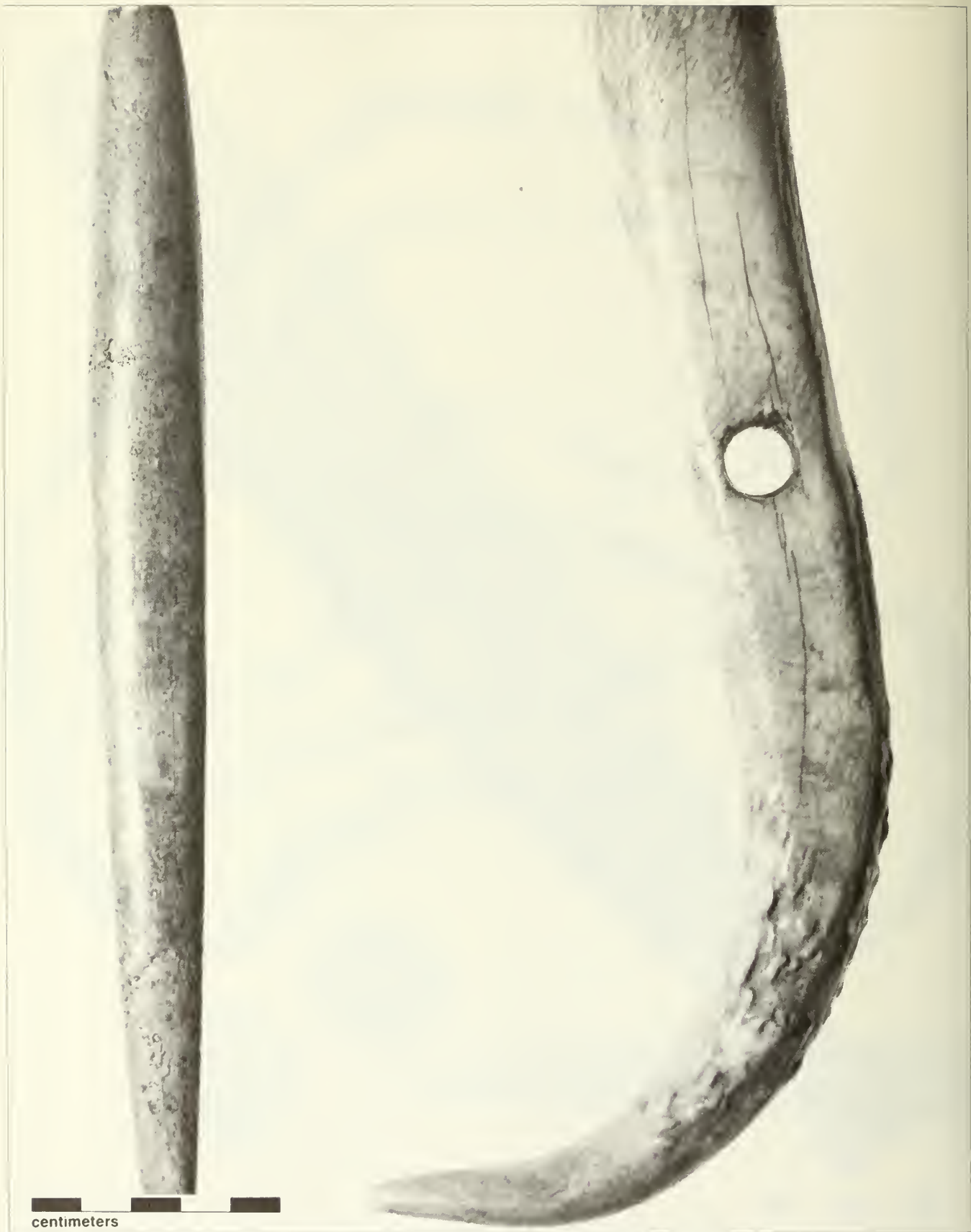


Fig. 5.14 Bone wand and antler digging stick handle from Fuller Mound.



Fig. 5.15 Distribution of Kalapuya group territories east and west of the Willamette River; Molalla Territory in the Western Cascades.

summer months, when the weather was fine, people ranged widely. They camped in the open with only the most casual of brush shelters, when any shelters were used at all. During the cool, wet months of the year they lived in substantial houses, each sheltering multiple families. One type of structure, described by a native of the Mary's River area in the southwestern corner of the valley, was said to be up to 60 feet in length. It had a pole frame, bundles of grass tied to the frame to make up the walls, and a flat or nearly flat roof covered with slabs of bark. Inside, the house was partitioned off to accommodate as many as 10 families. The interior was furnished with mats of tule grass. Beds were laid along the walls, and from the rafters hung baskets and bags containing stored provisions (Mackey 1974:42). Another type of structure, only sketchily described, was a roughly conical shelter about 15 by 20 feet across which contained, among other things, drying racks for salmon and roots. This was apparently used during the summer season.

Kalapuyan society seems to have been basically simple, each local group practicing autonomy in governance. Marriage ties linked together different bands, and trading alliances existed between people of different areas. Historical accounts suggest that the Tualatin band of the northern valley joined with the coastal Tillamook and Alsea in raiding for slaves, which were then traded to the Chinook along the Lower Columbia River. Other kinds of trade relationships no doubt existed as well. No major chiefs, nor any well-defined elite class apparently existed among the Willamette Valley peoples under native conditions. The society was largely egalitarian except for the existence of a small class of slaves who occupied the lowest level of social status. Few additional details are known of the native society, largely because the Northwest, including the Willamette Valley, was stricken by a series of influenza or malaria epidemics during the late 1700's and early 1800's, which devastated whole populations, destroying much of the aboriginal way of life before it could be recorded.

The Molalla, who occupied the Cascades to the east of the Willamette Valley, apparently were few in number but historically well-established within the montane zone (Rigsby 1965, 1969). They are said to have wintered in small autonomous villages along the rivers of the western Cascades, and to have exploited the higher elevations in summer. They gathered roots and berries, hunted elk and deer, and fished for salmon, steelhead, trout, and eels in the streams and lakes of their country. They are known to have traded with the Klamath for slaves, and to have intermarried with their Klamath, Kalapuyan, Chinookan, and other neighbors from surrounding regions. Beyond this few details are known, although Molalla myths tell of longstanding

enmity and occasional warfare between them and their Cayuse neighbors to the east.

Problems

Current knowledge of Willamette Valley prehistory shows that major elements of the basic native subsistence economy as known historically extend at least 6000 years back in time. Continuity in artifact types, most notably the unbroken progression of projectile point styles, also indicates continuity of cultural tradition. Back beyond 6000 BP, however, the archaeological record for the valley proper is a blank. As noted at the beginning of this chapter, flooding of the Willamette River and its tributaries has, over millennia, built up the valley floor, burying earlier land surfaces beneath river silts and gravels. Whether early life in the valley differed radically from that known back to 6000 BP, or whether the known tradition may be followed back to yet earlier periods, is a question for future research, research that must pay close attention to geological as well as archaeological matters if it is to be successful.

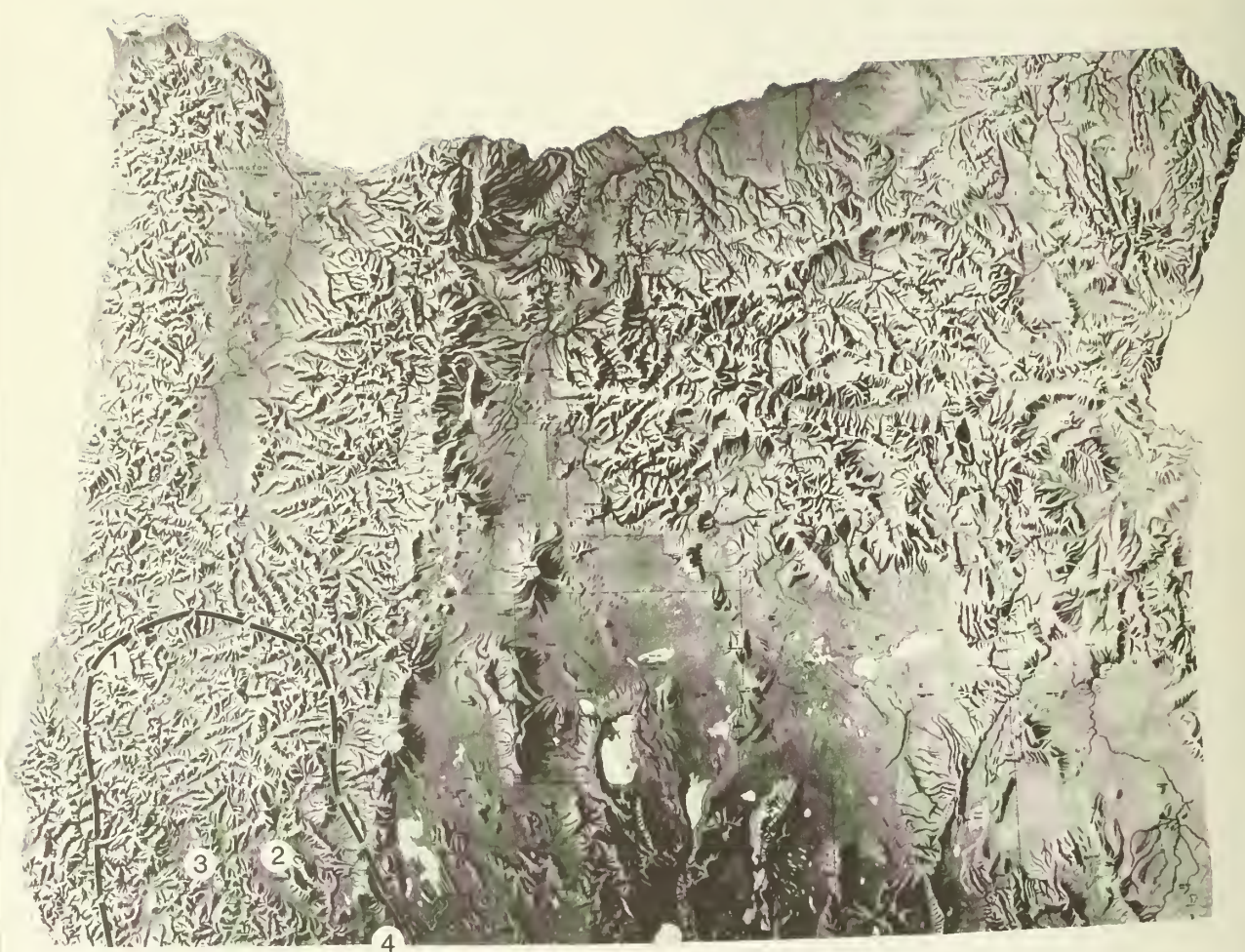
The record for the mountains remains extremely scanty. Occupations as early as 8000 BP are known there, but evidence comes from only a handful of sites. Neither the full sequence of occupation, nor anything like the full range of site types and activities conducted in the region are yet known.

In the beginning pages of this chapter, the question of climatic change and the effect it may have had on Willamette Valley peoples was raised. Although it seems likely that postglacial climatic change did affect the lives of prehistoric Willamette Valley peoples, a much more detailed sequence of human occupation, with many more dated sites, must be established before it will be possible to speak with confidence on this topic. Fuller paleoenvironmental data are also essential to test the validity of current paleoclimatic interpretations and to fill out the details of the sequence.

It has long been a commonplace of Willamette Valley ethnology that the native economy of the region was largely denied the salmon harvest so important to other peoples of the Northwest because of the inability of salmon to ascend the falls of the Willamette at Oregon City in any significant numbers (Kroeber 1939). Recently this view has been cogently challenged. It may be that salmon were a good deal more important to people of the upper valley than heretofore believed, and that our understanding of the matter has simply been clouded by inadequate analysis of the early historic accounts, as well as by our extremely limited historical knowledge of Willamette Valley

peoples. Future archaeological research at suitable sites, carried out with special attention to recovery of the delicate and perishable remains that might give evidence of fishing, may open up a new perspective on this question. Conceivably, current views about the relative unimportance of fishing to Willamette Valley peoples could be radically altered (McKinney 1984).

Finally, an important focus for future research is the realm of settlement pattern studies. Historical records provide very little detail about the kinds of groups people formed, and the nature of their camps and villages. While the native Willamette Valley settlement cycle is understood in a very general way, archaeological evidence is beginning to show that there may have been considerable variation in patterns of settlement and adaptation in different parts of the region (Connolly 1982). Further investigation along these lines cannot fail to further enrich our understanding of the native lifeway.



Key to Sites

- 1-Looney
- 2-Gold Hill
- 3-Rogue-Apple
- 4-Klamath River

Fig. 6.1 Map of the Southwestern mountains region of Oregon showing selected site locations.

Chapter 6

Southwestern Mountains

The natives of interior Southwestern Oregon were a mountain people, relatively few in number and isolated by the ruggedness of their country into scattered bands (Fig. 6.1). Speakers of Athabaskan languages occupied the western Klamath Mountains, their range extending in from the coast to include the Upper Umpqua and Upper Coquille valleys as well. Islands of Athabaskan-speakers also lived in the Medford-Grants Pass area surrounded by speakers of the Takelma language. Athabaskan groups included, from north to south, the Upper Umpqua, Upper Coquille, Cow Creek, Kwatami, Tututni, Shasta Costa, Chetco, Tolowa, Galice, and Applegate bands. Takelma-speakers included the Lowland Takelma of the upper Illinois and Rogue River valleys, and the Upland Takelma of the western Cascades. The Shasta, a group which extended northward from the Klamath River region in California, neighbored the Upland Takelma on the east and south. The lifeway of all these peoples had definite Californian affinities, especially in their economic emphasis on acorn harvesting, but in other ways too, as will be shown in due course.

Time and Environmental Change

The postglacial fluctuations in warmth and moisture that have been mentioned in previous chapters affected Southwestern Oregon as well. It has been suggested that during the mid-postglacial period of

increased warmth and dryness, oak savannah reached a maximum in the region; it became dominant at the lower and middle elevations of the mountains, while grassland and brushy chaparral species occupied the valley floors and lower foothills, and the coniferous species were forced upward to higher cooler elevations (Detling 1968). The last 4000 years or so have seen an amelioration of climatic conditions, and re-expansion of the coniferous woodlands at the expense of oak and chaparral, which are now more limited in their distribution.

No systematic research has yet been undertaken which might relate environmental changes of this kind to the native lifeway, but a few speculations as to the possible significance of such shifts to the human subsistence economy may be advanced. Most obvious is the fact that with the oak habitat much expanded in mid-postglacial times, the possibilities for acorn harvesting would have been greater than they are now. On the other hand, species such as camas, which requires wet meadowland to flourish, may have been much more restricted in distribution than they are now. With an expansion in grassland habitat, grazing animals such as pronghorn antelope and even bison may have been common, while the amount of habitat suitable for deer and elk may have been less in the already restricted higher elevations to which they were driven. With a return to cooler, moister climatic conditions, these trends would have been reversed, culminating in the conditions we observe today.

Other changes can be imagined, but these are illustrative of the possibilities with which the archaeology done to date in the region has not yet begun to reckon and to which future archaeological and paleoecological research there will have to attend.

Environment and Human Settlement

Interior Southwestern Oregon is a rugged, mountainous region that seems long to have been both an ecological and cultural borderland between the cooler, moister Pacific Northwest and the warmer, dryer Californian province. The Klamath Mountains, which occupy most of the region, extending to the California border and the Pacific Coast, are geologically the most ancient and contorted in Oregon. On the north they adjoin the Coast Range, and on the east they face the western Cascades. The region includes a few small areas of relatively low lying, open country, along the North and South forks of the Umpqua River near Roseburg, and the Upper Rogue and Illinois rivers in the vicinity of Grants Pass and Medford. Elsewhere, steep mountains, sharp ridges, and deep, narrow canyons are characteristic.

The Coast Range and the seaward side of the Klamath Mountains are covered by Sitka spruce, western hemlock, and Douglas-fir forest; where there is greater moisture, western red cedar is commonly intermixed as well, while on dryer sites ponderosa pine and sugar pine are more common. In the Cascades, the higher elevations are covered with forests of Pacific silver fir, Shasta red fir, and grand fir. These coniferous montane forests ring a compact interior zone of mixed coniferous and broadleaf forest that covers the intermediate and lower elevations of Southwestern Oregon with intermingled stands of Douglas-fir, madrone, canyon liveoak, and broadleaf evergreen tanoak. This woodland is more similar in its openness and species composition to the forests of the California Coast Range and Sierra Nevada than it is to the dense, moist Douglas-fir forests to the north and west of it in Oregon. At the center of this zone, in the interior valleys around Roseburg, Medford, and Grants Pass, which lie in the rain-shadow of the Southern Coast Range and Klamath Mountains, there occurs yet another kind of vegetational mosaic. This assemblage, adapted to the hot, dry summers of the area, includes varying mixtures of Douglas-fir, ponderosa pine, Oregon white oak, California black oak, and manzanita. Again the greatest similarity is with Californian rather than Oregonian vegetation patterns.

The mammalian fauna of Southwestern Oregon included black bear, the Roosevelt elk, mule deer,

rabbits, squirrels, and many smaller rodents, to name only a few of the species known historically to have been important in the native people's diet. Characteristic birds included grouse, woodpecker, band-tailed pigeon, and a host of small passerine species. Salmon and steelhead ran in the Umpqua, Coquille, Rogue, Illinois, and Klamath rivers in considerable numbers, though not of course in the abundance known from the Columbia River. Trout were year-round residents in these rivers as well, and in many smaller streams throughout the region.

Cultural Chronology and Time Markers

A ^{14}C dated cultural chronology for Southwestern Oregon has yet to be established, but a rough outline of the general typological sequence can be derived through comparison of locally recovered projectile point types with types known from the surrounding Plateau, Great Basin, and California culture areas. The finding of a fluted point has been reported, though not adequately documented, for the Umpqua river region around Roseburg (Hanes 1978a). Since Clovis fluted points have been found elsewhere in Oregon, including the Willamette Valley immediately to the north, it would not be surprising to discover them in the southwestern corner of the state as well. Thus it is possible that humans were in the region by about 11,500-11,000 BP, the age range for the Clovis type as established elsewhere on the continent.

Large triangular-bladed points with broad stems which have been found in impressive numbers at Site JA53 in the Applegate Valley, closely resemble the Windust type known from the Plateau in the period 10,000-8000 BP, and bear a more general resemblance to the central California Borax Lake Stemmed type, which also dates as early as 8000 BP (Brauner 1983).

More recent in age are medium to large leaf-shaped points with edge serrations, found at sites in the Applegate drainage and elsewhere, that correspond closely in both form and technique of manufacture to the Cascade points which on the Plateau are dated between about 8000 and 4000 BP. Some quite large, rough, side-notched triangular points, vaguely reminiscent of the Plateau and Great Basin Northern Side-notched type of about this same time range, also occur in association with the Cascade-like specimens (Nisbet 1981).

Subsequent in time are somewhat smaller leaf-shaped points which seem to overlap in form and size with the Cascade-like specimens, but to be made by a different technique of manufacture. These have been called Gold Hill points, after an important site on the Rogue River by that name.

The age range of the type is not well-established, but specimens which seem highly similar are known from two sites on the Oregon Coast that are ¹⁴C-dated to about 3000 BP. Probably the type began to be made somewhat before that time, and continued in use until some time afterward. Fairly crude corner-notched, side-notched, and basal-notched points of medium to small size have been found associated with Gold Hill points at the Sinn's Bar site in the Applegate drainage, implying a similar age. The closest analogues to these specimens in the surrounding region may be the Great Basin Elko, Rose Spring, and Eastgate types, which span roughly the period 4000 to 500 BP, but the forms are by no means completely identical.

At the most recent end of the typological sequence, ¹⁴C-dated to the last 1000 years or so on the Lower Klamath River, are small, delicately made corner-notched and base-notched arrowpoints given the name Gunther Barbed. These specimens are common throughout Southwestern Oregon, where they seem to represent the final prehistoric and early historic occupation, being occasionally found in association with Euro-American goods.

Major Sites

Archaeological studies along the Applegate River, just north of the Oregon-California border, have recently established the outlines of a cultural sequence for Southwestern Oregon that may reach back 8000 to 10,000 years (Brauner 1983). At Site JA53a, found on a high terrace overlooking the river, excavations of two large 30-foot square areas recovered over 80 large spearpoints of apparently early type (Fig. 6.2). The specimens have triangular blades and broad stems, and are highly similar to the Windust type ¹⁴C-dated in the Plateau region to the period 8000-10,000 BP. Edge-faceted cobbles believed to be hide-working tools, and flaked stone scrapers and cutting tools also occurred, along with some peculiar circular discs an inch or so across, flaked entirely around their edges. Traces of crushed and decomposed bone were found in association with the artifacts, and it seems apparent that the site was a hunting and butchering station. No structural remains were identified, although the distribution of natural stones across the archaeologically exposed area suggested that the site occupants may have deliberately cleared work spaces by shifting and piling the rock which littered the area.

Site JA53b, on the next lowest terrace of the river, yielded a number of serrated lanceolate points comparable to the Cascade type of the Plateau, and there ¹⁴C-dated between 4000 and 8000 BP. Site JA52, nearby, produced similar specimens. Stone bowl mortars and shaped pestles were

associated with these points, as were hopper mortar bases and mano and milling slab fragments. The grinding tools suggest that processing of plant foods such as camas roots, acorns, and grass seeds was now being carried out in the locality, while hunting persisted, as indicated by the projectile points (Fig. 6.3).

The Sinn's Bar Site, located in the valley bottom, represents the later end of the Applegate sequence. The basal levels of the site, which extended to a depth of 10 feet, produced large serrated lanceolate points like those found on the higher river terrace, and large, relatively crude side-notched points as well. In upper levels, leaf-shaped points of the Gold Hill type occurred, along with a variety of small, notched points (Fig. 6.4). Pithouse remains were encountered in the upper levels of the site as well, though details of their structure remain unknown. A single point of the late prehistoric Gunther Barbed type was found, in a contact period pithouse which culminated the site sequence. Other characteristic tools of the region included flaked stone knives, drills, and scrapers (Figs. 6.5, 6.6).

The Applegate research has offered a glimpse, for the first time, into the antecedents of what was for long the only archaeologically reported culture of interior Southwestern Oregon, that of Gold Hill.

The first major prehistoric find in interior Southwestern Oregon was made at a very rich site located on a shoreline terrace of the Rogue River opposite the small town of Gold Hill. The discovery was made by a landowner in the process of levelling a knoll in a cultivated field, by first plowing deeply to break up the soil, and then dragging the loosened earth to an adjacent low area, using a horse-drawn fresno scraper. When the knoll had been reduced by some three feet in this way, the plow began to bring up human remains and artifacts in remarkable quantity. Dr. L. S. Cressman of the University of Oregon was called in; he directed salvage operations at the site in 1930, 1931, and 1932, which proceeded by plowing and scraping as before, the work shifting to hand troweling and screening when signs of occupation were discovered (Cressman 1933a, 1933b).

The area investigated in this way measured about 120 feet across, and the maximum depth reached by excavation was seven feet. Some 39 human burials were uncovered, mostly in the southern part of the mound, and approximately 30 areas of concentrated occupation were recorded, mostly in the northern part of the mound. The human remains had all been placed in the flexed position, in small pits. The areas of concentrated occupation were roughly circular or ovate in plan, and varied from four feet to 15-20 feet across. They consisted of fire hearths and associated fire-cracked stones,

Fig. 6.2 Early projectile points from Site JA53, Rogue-Applegate area.



ash, charcoal, artifacts, and bone and antler fragments. No house floors or house pits were identified, but given the method of excavation with plow and scraper it cannot be definitely asserted that none were present. Indeed, given the abundance and variety of artifacts and human remains from the site, it seems quite clear that it must have been an important residential location. The predominant occurrence of occupational debris at the north end, and burials at the south end, also suggests a village-and-cemetery situation.

No clear-cut soil stratification was documented for the site, but the excavator reported his definite impression that cultural remains were roughly concentrated into three levels or zones, each some two to three feet in thickness. This depth of deposit implies that the site was occupied over a

considerable period of time, and this impression is borne out by the typology of the projectile points recovered from it (Fig. 6.7). A considerable number of medium-sized points of willow-leaf shape, since dubbed Gold Hill points, are very similar to specimens ¹⁴C-dated on the Oregon Coast as early as 3000 BP, and evident in the Applegate Valley sequence after perhaps 4000 years ago.

At the other end of the time scale, many small, very finely made arrowpoints of the Gunther Barbed type were found; these, as noted above, are ¹⁴C-dated within the last 1000 years on the lower Klamath River. The complete absence of Euro-American goods at Gold Hill suggests that the site was abandoned prior to the beginning of historic times. Thus a reasonable estimate would place the main occupation between about 3000 BP and late

Fig. 6.3 Projectile points of the Middle period from the Rogue-Applegate area.



prehistoric times, though there is some possibility that it may have begun earlier. The apparent absence of medium-sized corner-notched and side-notched points, which seem in the Applegate chronology to represent a period intermediate between the time of the Gold Hill point and Gunther types, suggests that there may have been a significant hiatus between earlier and later periods of occupation at Gold Hill. Perhaps the divisions sensed in the stratification of the site are related to breaks in the occupational sequence.

In addition to the projectile points already mentioned, which would seem to represent the hunting component of the local economy, a number of ground stone pestles, bowl mortars, and hopper mortar bases were recovered, representing the processing of vegetal foods such as camas roots

and acorns (Fig. 6.8). Some of the pestles were very finely made, carved with raised bosses on either side of the handgrip area. Moore (1973), a long-time local resident and collector, reports a large number of "heavy, slightly concave metates" from the site that actually may have been hopper mortar bases rather than grinding slabs, as the term "metate" implies. This is not certain, however, since he also illustrates (Moore 1973; Fig. 169) several flat, smooth hand-sized stones, and two of the highly distinctive two-horned mullers of the well-known Klamath type, which correspond to the manos or hand stones commonly used to crush seeds on the metate.

Manufacturing tools reported from the site are limited, but included numerous flaked stone scrapers and pounding/rubbing stones, as well as

Fig. 6.4 Projectile points from the Rogue-Applegate area. Top two rows, historic period; bottom row, protohistoric.



many well-made flaked stone drills. It is possible also that other tools of more casual form existed, such as gravers and choppers, but were not differentiated from the stone detritus of the excavations.

The most impressive finds made at the site were the human burials and their contents. As noted earlier, 39 pit graves were recorded from Gold Hill, and a disastrous flood on the Rogue River, which in 1964 totally destroyed the site, fleetingly revealed others previously unknown, as the cultural deposits were calved off and carried down the river. A number of the buried individuals were accompanied by exquisitely shaped obsidian blades, 8 to 12 inches long, evenly flaked over both surfaces and slightly constricted at the midpoint as if for a handgrip (Fig. 6.9). In total, some 22 such blades

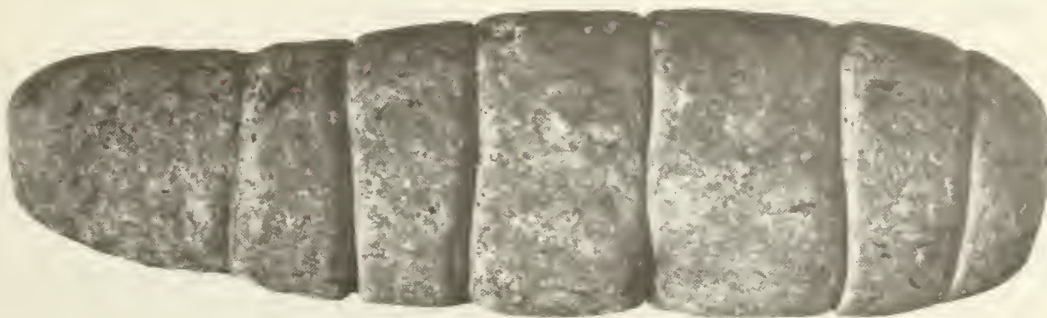
have been reported from Gold Hill, and it is possible that others were recovered by collectors who published no record of their plunder. The blades occurred singly or in pairs in the graves which possessed them, except for one interment, in which five obsidian blades and one comparable specimen made of slate were found. Another grave held a quantity of beads made from the seed of the digger pine, several hundred beads of the marine *Olivella* shell, and several pieces of *Glycymeris* and abalone shell, while yet another yielded seven tubular smoking pipes of serpentine or greenstone schist, finely shaped and smoothed, and varying between four and eight inches in length (Figs. 6.10, 6.11).

The obsidian blades are of a type still used by the historic Yurok and Hupa peoples of the Lower



centimeters

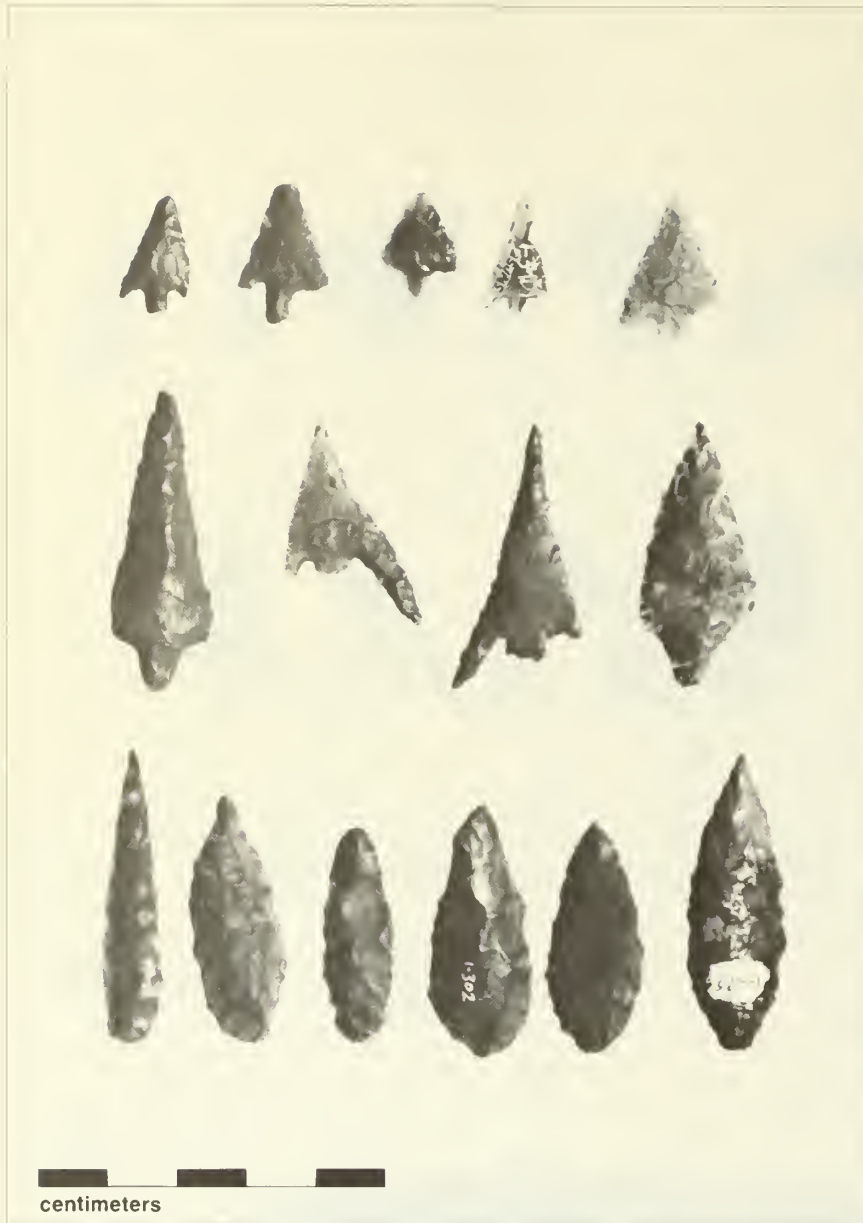
Fig. 6.5 Flaked stone tools from the Rogue-Applegate area; upper, scrapers; lower, knives.



centimeters

Fig. 6.6 Grooved stone object from Site JA52, Rogue-Applegate area.

Fig. 6.7 Projectile points from the Gold Hill Site. Top two rows, Late period; bottom row, Early period.



Klamath River as objects of great value and ceremonial importance. The stone smoking pipes also have their greatest similarities among northern California specimens. These two classes of objects, along with the distinctive Gunther Barbed projectile points mentioned previously, clearly indicate the northern California cultural affinities of the Gold Hill inhabitants.

The best representation of late prehistoric and early historic occupation in Southwestern Oregon is to be found at sites along the Lower Klamath River, just above the point at which it crosses from Oregon into northern California. This locality lies in the extreme southeastern corner of the region under discussion, at the edge of the historic range of the Shasta Indians, but within an environmental context generally comparable with the rest of Southwestern

Oregon. A ^{14}C date of slightly more than 6000 BP from Klamath Shoal Midden shows human presence in the area at an early time, but sites from which a detailed record has been derived are much later, dated near the beginning of the historic period. Of interest here for illustrative purposes is Border Village, located on the Klamath River a scant half-mile north of the California border. Big Boulder Village and the Iron Gate Site furnish comparable records, but to avoid substantial duplication of descriptive information they are simply incorporated by mention here.

Border Village occupies an area about 600 feet in length and 100 feet in width, on an alluvial terrace overlooking the Klamath River. Within this space were observed 19 apparent pithouse depressions, which occurred, irregularly spaced, in two parallel

Fig. 6.8 Stone bowl or mortar from the Gold Hill Site.

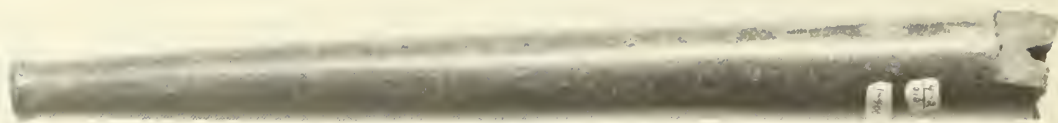


rows. Two of these depressions were completely excavated, revealing substantial semisubterranean pithouse floors, and a third was cross-sectioned by means of an x-shaped trench, confirming that it was a similar structure.

Housepit 1 proved to contain four occupation floors, the deepest about two feet beneath the surface, and the others apparently representing episodes of rebuilding or refurbishing the initial structure. The floor of this building was circular, slightly over 21 feet in diameter. In the center was a large firepit, and lying on the floor were scattered artifacts including many muller fragments and several milling slabs. Charred wooden posts and slabs lay on the floor, and three stubs of apparent roof support posts remained in vertical position near the center of the unit. Two vertically placed wooden planks, and the

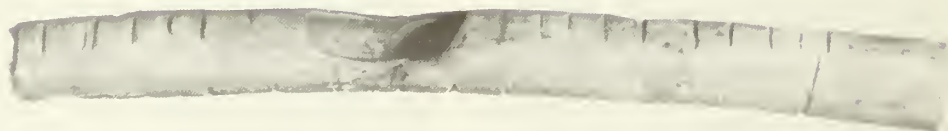
wood fragments lying on the floor, suggested that the superstructure of the dwelling had consisted of wooden planks leaned inward from the edges of the housepit to rest against the support posts observed near its center. The floor which overlay this one, separated by a few inches of earth, exhibited similar characteristics, as did the two which followed in sequence above it. The three uppermost floors all exhibited both a central firepit and a subsidiary fire area to one side of it nearer the house wall. Burned materials found on all four floors suggested that each cycle of occupation had been terminated by fire, after which a new structure had been built in the same pit.

A ^{14}C determination made on a vertical post stub associated with the third occupation floor indicated an age of 550 BP, or approximately A.D. 1400. It



centimeters

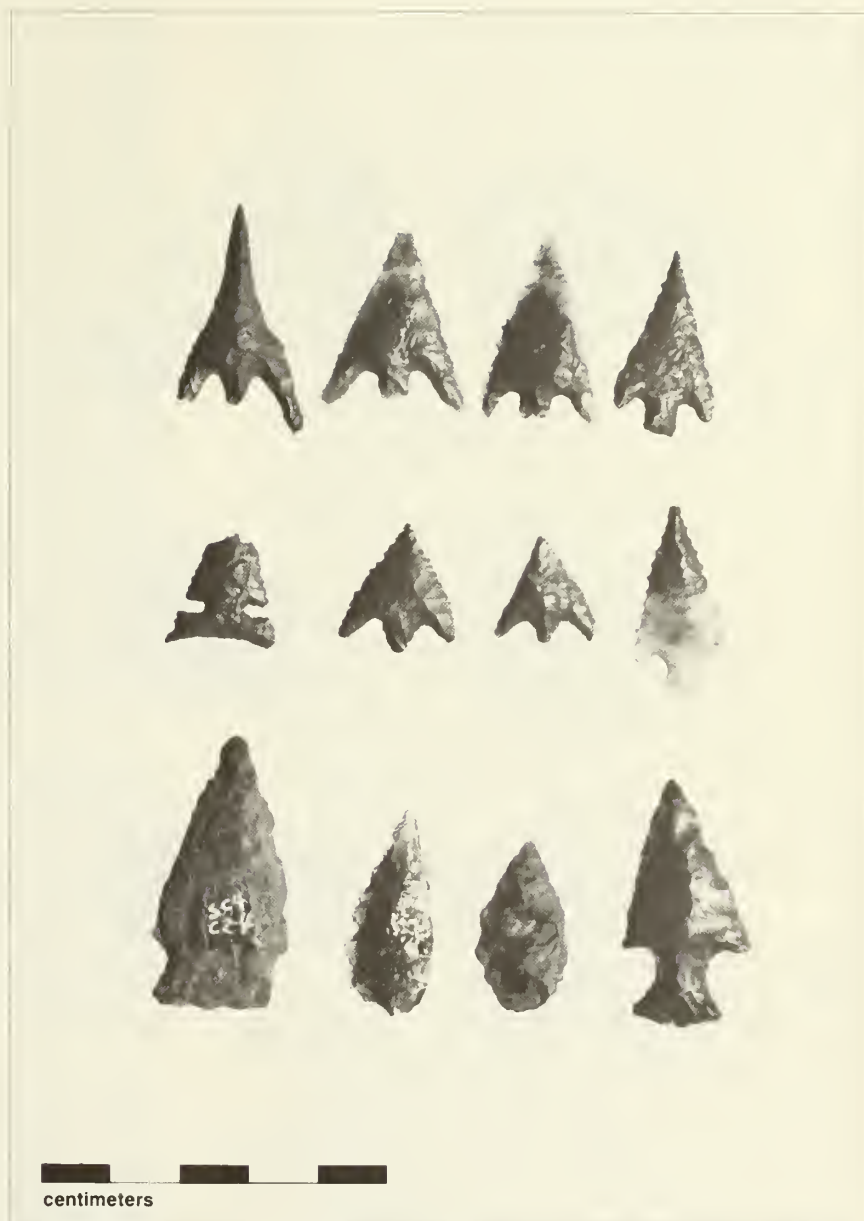
Fig. 6.9 Tubular steatite pipes from the Gold Hill Site.



centimeters

Fig. 6.10 Bone whistle or hair ornament (?) from the Gold Hill Site.

Fig. 6.11 Projectile points from the Middle Klamath River area. Top row, Gunther Barbed and small basal notched point; middle row, left, Desert Side-notched, right, small stemmed points; bottom row, earlier stemmed and leaf-shaped forms.



seems that no great amount of time separated the four occupations represented within the housepit, since the same kinds of projectile points, predominantly specimens of the Gunther Barbed type known to be of late prehistoric age, were found throughout (Fig. 6.12).

Excavations showed the other two houses examined at the site to have much the same character, while the projectile points excavated are predominantly of the Gunther Barbed type, suggesting a similar age. Whether all 19 of the structures indicated by surface depressions at the site conformed to this same pattern of content and age is speculative, of course. It would not be surprising if further work at the site suggested a broader time range for the location as a whole, but currently available evidence gives little sign of it.

The artifact assemblage from Border Village was rich; the collection from Housepit 1 is illustrative. Items representing hunting included projectile points and a variety of knives and scrapers. The processing of plant foods is indicated by a large number of milling stones and manos, or mullers, as well as by the occurrence of over 400 pottery fragments from cooking vessels. Manufacturing activities are attested by flaked stone cores, drills, gravers, knives, and scrapers. A few fragments of twined basketry were also preserved, which is very unusual in open sites of this kind.

Bones excavated from the housepits at Border Village gave evidence of a varied bag of food species; fish included salmon, chub, and a variety of suckers; mammals included deer, antelope, elk, mountain sheep, beaver, porcupine, a variety of

small rodents, jackrabbit, cottontail, river otter, and such predators as grizzly bear, mountain lion, and red fox. It is thus clear that the inhabitants of the village relied both on the river and on the wooded hinterlands beyond it for the obtaining of protein foods. Though no actual plant remains were preserved, it seems likely that plant gathering followed a similar pattern. Certainly the grinding tools recovered from all occupation floors indicate consistent processing of vegetal foods.

From the occurrence of pottery sherds at Border Village and other Lower Klamath River sites, Mack (1983) has defined a new artifact type for Southwestern Oregon and northwestern California. It has long been believed that the people of the Northwest and California did not make and use pottery; in historic times none did to any significant extent. But archaeological discoveries have now shown that in late prehistoric times, indeed continuing almost into the historic era, pottery was made and used over much of the region treated in this chapter. So far, reports of its occurrence are scattered and mostly from accidental or casual discoveries, but enough evidence exists to suggest that there existed a definite local tradition. The material has been designated as Siskiyou Utility Ware, and is characterized as crudely made, variable in thickness, and buff in color (Fig. 6.12). Vessel forms, as judged from fragments, seem to have included mainly shallow bowls and cups.

Siskiyou Utility Ware is quite different from the pottery wares of the Great Basin, and Mack suggests that it was independently developed along the Lower Klamath River. Small fired clay figurines which seem to represent animal figures occur in the same area and may represent the same basic tradition. The manufacture of such figurines is known sporadically along the Columbia River and in California as well, and it has been suggested that Siskiyou Utility Ware was a local development that grew out of the widespread, though not widely-used, knowledge of fired clay technology that this figurine tradition demonstrates.

A number of additional sites deserving mention are known to exist in the mountains of Southwestern Oregon beyond those selected above as illustrative of the general cultural sequence. In the Elk Creek-Lost Creek area in the western Cascades east of Grants Pass, a number of housepit and open sites were test-excavated, producing Gold Hill and Gunther Barbed projectile points and other evidence which allowed the excavators to postulate human occupation in the area from about the period of the Gold Hill Site down to historic times. Additional work on some of these important sites is badly needed (Davis 1972, OSU Department of Anthropology 1981).

In the Camas Valley area of the Coquille River's Middle Fork, farther north, a number of small short-term occupation sites have been found (Hanes 1978b). One of these, the Looney Site, was apparently a hunting and vegetal food-processing station, probably seasonally used during the interval roughly 1500-2000 BP. These functions were suggested by an inventory of projectile points, biface and uniface cutting and scraping tools, edge-ground cobbles, sandstone grinding slabs, mortars, and pestles, among other items. The time range was defined, in the absence of ^{14}C dates, by a detailed comparative seriation of Southwestern Oregon-northwest California projectile point types from a number of sites, some of them ^{14}C dated. Especially notable at the Looney Site in terms of broader cultural relationships was the recovery of a number of possible microblades and microblade cores. If these are truly microblades and microcores, they represent a stone tool-making technology which is well-known on the northern Plateau and along the Northwest Coast, extending back thousands of years in time, but which had not been previously reported from latitudes as far south as Oregon (Pettigrew 1980).

Another site of note, not yet reported in detail, was excavated in the drainage of Steamboat Creek, a tributary of the North Umpqua River. Fairly large stemmed and side-notched projectile points dominated the lower levels of the site, while base-notched forms became increasingly common in the upper levels. Faunal remains were preserved, and the excavators suggested that the location was probably a hunting camp, occupied over perhaps the last 6000 years (Brauner and Honey 1977).

Life Style

The archaeological sequence just outlined sketches (though far from adequately) the antecedents of interior Southwestern Oregon's historic native cultures. Available information on the historic natives portrays them as a hunting-fishing-gathering people who made their living from a wide variety of natural resources to be found in the narrow canyons and small interior valleys they occupied, a picture broadly congruent with that which can be inferred from the archaeological record.

The main villages of the Takelma, Shasta, and Athabaskan groups of the region were composed of semisubterranean houses generally located on alluvial terraces of the major streams. A surviving illustration of an Umpqua house of the 1850's shows a large, substantial plank structure with gabled roof, apparently semisubterranean, very much like the plank houses known up and down the Northwest Coast and along the Lower Columbia. Takelma and Shasta houses were of

Fig. 6.12 Fragments of Siskiyou Utility Ware pottery from the Middle Klamath River area.



similar construction, some with plank covering and others, of poorer folk, sheathed with slabs of bark.

Main sources of food for the historic natives included salmon, trout, suckers, crayfish, freshwater mussels, deer, elk, squirrels and other rodents, camas, acorns, berries, sunflower seeds, tarweed seeds, and pine nuts. Winter villages were abandoned in early spring as the people scattered widely into small hunting-gathering camps. Camas roots were dug in early spring and summer, baked in earth ovens, and stored against the coming winter. Acorns were gathered in early fall as another winter commodity, to be pulverized in a hopper mortar, leached in water to remove the bitterness, and boiled as a gruel.

Salmon fishing was most important in the fall, when salmon were abundant in the streams leading up from the sea. The salmon harvest was a major event, though the fish did not occur in anything like the quantities available on the Columbia. Fish fences, or weirs, were often built across rivers to constrict the passage of the salmon to a narrow gate, where they might be netted or speared as they passed through. Basketry traps were also used in conjunction with these weirs, while fish were elsewhere taken with hook and line.

During winter, people regrouped in their permanent villages, to occupy the cold season with such limited food-getting efforts as were profitable, and with domestic chores. Hunting, and fishing for river species, went on all year, but were perhaps relatively more important in winter when they were

about the only economic pursuits left to people after the plant-gathering and salmon seasons had ended. Deer were stalked by hunters disguised with deer heads and skins, driven by men with dogs, or caught in deep winter snow. Some Athabaskan groups took elk in deep pit traps dug in game trails, which had upright sharpened stakes at the bottom of the excavation to impale and dispatch the unlucky creatures falling into them.

Sociopolitical organization was simple. Villages were relatively small units, composed of closely related families, and each village was an autonomous entity bound to no larger polity, except perhaps for certain purposive and brief-lived alliance arrangements. A sense of territoriality was strongly felt by some groups, especially the Athabaskan-speakers, and skirmishes were sometimes fought over trespasses by other groups. Despite these attitudes, there were of course occasions when larger groups came together, for ceremonial events and at especially productive fishing or gathering localities. Further, since it was the rule to seek mates outside the village one was born in, settlements were linked in all directions by ties of kinship and marriage.

Archaeological evidence shows that some aspects of the historic way of life, most notably those parts of it related to the hunting and gathering of natural food resources, may be traced far back in time. Projectile points for hunting weapons date perhaps as early as 10,000 years ago. Mortars and pestles for the grinding of vegetal foods are attested by perhaps 5000 years ago. Concrete early evidence of fishing is so far lacking, though the consistent orientation of human occupation sites to major streams suggests that it has long been important. The specimens found in the archaeological sites mentioned above offer additional glimpses of a way of life broadly similar to that of historic times, but in the southwestern interior the record so far recovered is thinner than for any other comparable part of Oregon, and much remains to be learned.

archaeological frontier, even as it remained a historical frontier long after that stage had passed elsewhere.

Problems

The archaeological needs of southwestern interior Oregon are of the most fundamental kind. Though the prehistory of no part of the state is fully understood, this region is clearly the least known of all. The archaeological sketch offered in this chapter is the most tenuous of any presented in the book; the archaeological sample is so small, and the chronology so vaguely defined, that problems of adaptation to environment, cultural change, and trade cannot be addressed in any but the most anecdotal fashion. The area remains Oregon's last

Chapter 7

Ancient Oregon Cultures in Perspective

The close inspection accorded individual native Oregon cultural traditions in the foregoing pages has highlighted their variety, and the distinctive features of each. The specific environments they occupied, as well as unique historical events which inevitably affected the development of each tradition, has made each of them measurably different from all the others. Moreover, there were surely further shadings of individuality among the local societies which made up the regional traditions, although they are difficult to recognize archaeologically because so much of human culture exists in the realm of ideas not embodied in (or at least not readily interpretable from) the material objects left for archaeologists to study. But the native Oregon traditions can also be seen from a much broader point of view, that brings into focus similarities and differences between them and other ancient cultures of western North America—and elsewhere. Most of this brief concluding summary is devoted to placing early Oregon cultures in this broader perspective, save for a closing reminder about questions and problems yet to be resolved, that will be the subject of future research.

Early Peopling: Paleo-Indian Hunters

The first Americans came from northeast Asia across the Bering Land Bridge, which emerged as Pleistocene glaciers locked up much of the world's water on land in the form of continental ice sheets. The first immigrants most probably crossed Beringia during the last glacial maximum, between about 25,000 and 15,000 years ago, when sea level was at its lowest. Much of Alaska remained unglaciated, and its territory would have then constituted simply the easternmost reach of the arctic tundras which stretched endlessly out of northeast Asia into the far north of the New World. During the same period, the Laurentide Ice Sheet, spreading outward from the Hudson Bay region, and the Cordilleran Ice Sheet, spreading outward from the northern Rocky Mountains, covered much of Canada. In one area of northern Canada the terminal moraines—masses of earth and rock pushed ahead of the advancing ice—of these two glaciers overlap, suggesting that for part of the period at least, continuous glacial ice would have blocked early American movement southward from Beringia and Alaska into the continental interior.

A ^{14}C date of 13,200 BP for Fort Rock Cave in Oregon, and dates of 14,500 and 15,000 BP for Wilson Butte Cave in Idaho, are the earliest indications of human occupation in the Northwest. They are in fact among the earliest dates plausibly claimed for human presence in North America, but it must be noted that all currently available dates in

this and earlier time ranges are controversial, due to limitations or ambiguities in the evidence.

By at least 11,000 years ago, however, people were indisputably present all over America. A large series of ^{14}C dates from sites in Arizona, New Mexico, and elsewhere establish a time range of 11,500 to 11,000 BP for sites of the highly distinctive Clovis complex (named for a discovery near the town of Clovis, New Mexico), which is represented by archaeological finds from Nova Scotia to California, and from Alaska to Panama (Haynes 1969; Bryan et al. 1978). Well-made spear points of the Clovis fluted type have been found scattered in all parts of Oregon, and the Dietz site, in the eastern half of the state, has yielded a considerable number of Clovis points and related artifacts. Thus it is clear that by at least 11,000 years ago, and probably earlier, the first Americans—often referred to as Paleo-Indians—had entered the continental interior and established themselves in many places, including Oregon.

The Paleo-Indians of the late glacial period are known from a number of sites in North America to have been hunters of mammoth, giant bison, camel, and other large game animals which subsequently became extinct as the cool, moist conditions of the ice age gave way to the warmer and dryer climate of postglacial times. Although no big-game kill sites associated with Clovis points have yet been documented in Oregon, the bones of horse and camel have been found with a few non-diagnostic artifacts at the Paisley Five Mile Point caves, and it is a reasonable presumption that Oregon's Paleo-Indians preyed on the rich Pleistocene fauna then extant in the region. At this period, early Oregon cultures were probably more similar to others elsewhere in North America than they ever were again. The Clovis horizon marks the only time in American prehistory when a single diagnostic artifact style spread over the entire continent: apparently the early Paleo-Indian hunters traveled fast and far establishing themselves in the rich and unexploited New World environment, and in so doing laid down the cultural base from which later regional traditions sprang.

Postglacial Readaptation: Archaic Foragers

Between 11,000 and 9000 years ago, North American environments changed dramatically as the climate warmed and dried with the waning of the glacial age. By the end of this interval, the mammoth, horse, camel, giant bison, and other species hunted by the Paleo-Indians were reduced to extinction. Only in the Great Plains, where endless grasslands and herds of bison persisted, did a big-game hunting way of life continue. In the

east forests replaced open tundras, grasslands, and parklands, while in much of the west shrubby semidesert vegetation replaced richer, grassier conditions as the postglacial climate dried the landscape and shrank the great lakes once present there. In both east and west the large herding species were replaced by smaller, more scattered animals, and Paleo-Indian big-game hunters gradually became Archaic foragers, hunting and gathering a wide variety of plant and animal foods.

The Archaic lifeway developed differently in various parts of the country, divergence taking place as individual societies adapted themselves to woodlands, rivers, seacoasts, mountains, or deserts. All these groups were characterized by broad-spectrum hunting and gathering, hence may all be labelled by the same general term, Archaic. But they differed in detail, in ways reflecting the specific environments to which they became adapted; during the Archaic period, the continent-wide uniformity of the Clovis horizon gave way to a whole series of regional culture patterns. Within Oregon five regional traditions have been recognized, as reflected by the main chapters in this book. All these traditions represent cultures of Archaic type, and all continued from early beginnings right down to the end of prehistoric times.

In the Great Basin zone of eastern Oregon the very earliest known archaeological remains, at Fort Rock Cave, are too few to allow characterization of the culture type, but by at least 9000 BP a desert culture tradition of Archaic type had developed there. Hallmarks of this desert adaptation were the milling stone and mano, for the crushing of seeds; a woven textile complex which included carrying baskets, nets, matting, and other elements; woven sandals of sagebrush bark or tule; rabbitskin robes; the atlatl and dart (early) and the bow and arrow (late); and a highly mobile, wide-ranging pattern of life, suited to the collecting of sparse and scattered resources over a vast territory. This way of life was not restricted only to Oregon, but was practiced, with local variations, all over the Great Basin province of Oregon, Nevada, and Utah, and beyond into the deserts of northern Mexico.

In the Middle Columbia River region of north-central Oregon, the Plateau tradition early developed into a riverine adaptation. The uplands were exploited for game during hunting seasons and several species of edible roots were gathered there at appropriate times of the year, but the main focus of human habitation came to be the banks of the Columbia River and its tributaries. The seasonal salmon runs became a major economic focus, and the abundance they provided supported many small settlements of substantial semisubterranean earthlodges, where groups spent much of the year and to which they returned after hunting and gathering

forays into the uplands. The mortar and pestle, for pounding roots into meal, were characteristic items, as were various items of fishing gear such as net weights, net floats, fish hooks, and fish spears. The atlatl and dart, and the bow and arrow, served as projectile weapons. Stone mauls and antler wedges, along with other tools, formed part of a well-developed woodworking complex. The Plateau pattern extended not only along the Middle Columbia in Oregon, but northward throughout trans-Cascadian Washington and into the Fraser Plateau of British Columbia.

The cultural tradition of the Lower Columbia River and Oregon Coast embodied both riverine and marine adaptations. On the Lower Columbia between the Cascades and the coast range, large settlements were established along the banks of the river. Along the sea coast, stable villages tended to be situated on bays, or at places where rivers emerged from the interior. Fishing and woodworking were of great importance in all these societies, and tools relating to these tasks are common in the archaeological assemblages. The mortar and pestle for processing plant foods were also common, and the atlatl and dart and bow and arrow were both in use for hunting in earlier and later times respectively. At the mouth of the Columbia, and at places along the coast, seals and sea lions were hunted, using harpoons with bone points. The wooded mountains beyond the water's edge were clearly exploited for plant and animal foods, but apparently, at least on present evidence, the interior forests were only lightly utilized by societies that concentrated heavily on the resources of watery environments. All these characteristics mark the Oregon lifeway here discussed as belonging to the great and rich Northwest Coast cultural pattern, identified along the Pacific Coast from Yakutat Bay, Alaska, in the north, to Cape Mendocino, California, in the south.

The Willamette Valley cultures occupied a distinctive grassland/parkland setting, within which a balanced economy based on a wide diversity of food resources was practiced. River fishing, root and seed gathering, acorn harvesting, and hunting of deer, elk, small mammals, and wildfowl were all of importance, with no overriding focus on any one class of resources. Valley societies were apparently quite mobile, ranging seasonally across territories which included riverine, gallery forest, grassland, and wooded foothills zones. Many sites known on the valley floor were spring and summer seasonal camps characterized by large earth ovens, where roots of the camas lily were baked and preserved for storage. The Hurd Site, at the valley edge, was apparently a residential village, where the remains of a large oval house with a slightly sunken floor were found. It may be typical of the more stable base settlements of the region. Deeper in the

mountains, especially the Cascades, upland hunting camps have been discovered that may either represent hunting forays by valley groups, or the seasonal camps of groups such as the historic Molalla, who occupied the mountains on a year-around basis. From various sites has been recovered a cultural inventory including the mortar and pestle for plant food grinding, large and small projectile points for hunting, and a variety of cutting and scraping tools for hide and woodworking. The Willamette Valley constitutes a distinctive natural and cultural area in its own right, although it shows, in projectile point styles, the use of the mortar and pestle, and other items, fairly close affinities to the Plateau and Coastal areas.

The Southwestern Mountains were a rugged hinterland occupied by small groups oriented to the rivers—the Umpqua, Rogue, and others—which cut through it on their way from the Cascades to the sea. In terms of both environment and culture, the region seems to have been a frontier zone between the Willamette Valley and northern California culture areas. Where the region touches the Pacific coast, the local societies shared in the greater Northwest Coast cultural pattern mentioned above. Salmon ran in the rivers, and a wide variety of game was to be found in the mountainous uplands that dominated the region. Acorns were available from extensive stands of oaks on the valley floors, and were probably more heavily relied upon here than they were farther north in the Willamette Valley. Stone bowl mortars, hopper mortar bases, and carefully shaped pestles, probably used principally in acorn processing, are common artifact types in the area. Hunting is well attested by an abundance of small and large projectile points, and by the bones of deer, elk, antelope, bighorn sheep, beaver, rabbit, and other creatures. In late times a pottery complex of distinctive character appeared, perhaps invented independently of other ceramic traditions in the west.

Connections and Convergences

As the above sketches show, within the territory of modern Oregon three major native culture areas came together. The Plateau, the Northwest Coast, and the Great Basin provinces extend far to the north and south of the state's boundaries, but each culture type is well represented by Oregon examples. The Willamette Valley and Southwestern Mountains harbored traditions of more localized cast that do not fit completely into the greater Plateau, Northwest Coast, or Great Basin cultural patterns; but the Willamette Valley did have fairly close affinities with the Plateau and Northwest Coast areas in particular, while the Southwest Mountains cultures seem to have been intermediate between those of the Willamette Valley and those of

Central California, another major cultural area to the south.

Because of these connections, this outline of Oregon prehistory may also serve as an introduction to the broad outlines of ancient cultures once existing over much of western North America. Further, the very fact that such similarities existed between ancient Oregon and other regions is evidence of far-flung networks of communication and sharing of ideas and experience among the prehistoric populations over many miles and many millennia.

Interesting parallels between early Oregon cultures and the lifeways of even more distant places may also be noted. These parallels, due not to common heritage or close intercommunication but to evolutionary convergence demanded by the necessities of human existence in habitats of similar character, illustrate the importance of adaptation to environment as a factor shaping human culture.

For example, the natives of the Willamette Valley and Southwestern Mountains ranged widely in the course of a year spent fishing for salmon in the rivers, hunting for deer and elk in the mountains, harvesting acorns in the oak groves, gathering seeds in the grassy parklands, and digging roots in the wetter low-lying areas. A very similar economic cycle was characteristic of the Indians of Central California throughout much of the last 5000 years, and also of the forest Indians of the Archaic period in the eastern United States (10,000-3500 BP), where most of the same plant and animal species were available and exploited. Farther afield, early Japanese of the Jomon period (10,000-3000 BP) exploited a highly similar flora and fauna in highly similar ways. Close environmental and economic parallels can be found in the forest cultures of Mesolithic period Europe (10,000-5000 BP) as well. In all these areas, similar though not identical hunting-gathering technologies included basic items such as the bow and arrow, the mortar and pestle, a range of stone tools for cutting, scraping, and woodworking, and basketry and cordage industries which served in catching and gathering. In all these areas, too, social groupings were relatively small, though living arrangements varied to the extent that communal dwellings were preferred in some regions, and single-family dwellings were the rule in others.

Comparable parallels may be drawn between the coastal peoples of Oregon and coastal folk from other parts of the world. The Northwest Coast culture pattern, in which western Oregon participated, extended from northern California up the coast through British Columbia to Alaska. The historic Ainu of Japan, and their archaeological predecessors, practiced a very similar maritime way of life, exploiting the salmon, sea mammals, and

shellfish of the ocean shore, and the deer, elk, bear, and other biota of the wooded hills behind. The deeply fjorded coasts of northern Europe provided comparable habitats and resources, as did the New England coast of eastern North America.

Similarly the Great Basin desert and the Plateau (the latter also generally arid but veined with rivers connecting to the sea), exemplify general habitat and cultural types found elsewhere. In South America, the Patagonian and Chacoan regions of the southern half of the continent include arid terrains remarkably similar to both the Great Basin and the Plateau, and the hunting-gathering cultures of these regions were comparable in their simplicity to those of the Great Basin and Plateau. The Kalahari Desert of southern Africa, and the interior desert of Australia, also harbored ancient desert cultures broadly like those of interior North America though if anything adapted to even more rigorous conditions.

The general similarities just recited between cultures remote from one another give evidence that human beings, who have the same fundamental needs and potentials wherever found, have tended to respond in similar ways when faced with the task of making a living in similar environments. Such evolutionary convergences are not mistaken for actual direct historical relationships, not only because of the distances involved, but because important aspects of social form, and of artifact forms, clearly differ from group to group. By contrast, many of the social and artifactual forms common to contiguous, historically related groups are often identical or nearly so, the product of direct face to face sharing of specific ideas and examples. The two kinds of comparisons have been brought out here at the last to display for the reader interested in native Oregon cultures the ways in which they are similar to other native lifeways, both near and far, and to suggest the two fundamental ways—historical and evolutionary—in which human experience generally is shaped.

Future Research

In presenting the narrative of Oregon prehistory offered in the preceding chapters, an effort has been made to hold the account to solid ground—to deal in straightforward interpretations that are quite well established and unlikely to be transformed in any radical or complex way by future discoveries. But it has also been made clear that there are many gaps in our knowledge, and each chapter has closed with a section titled "problems." All of these problems constitute questions for future research, and surely additional questions will occur to future investigators.

Because so much remains to be learned, it is appropriate to close this account with a warning that the precious cultural record of prehistoric Oregon—ancient sites and artifacts lying on and in the ground—is endangered. Construction activities, hobbyist artifact collecting, and outright pillaging of sites for objects to sell on the antiquities market are major and growing threats to a decidedly finite and non-renewable cultural resource. Archaeological interpretation depends on the analysis of artifacts and cultural features of known context, and many kinds of questions simply cannot be approached at all when objects have been improperly removed from their place of origin. Federal and state laws exist to protect our cultural resources, but the best protection will come from citizens who care about Oregon's past and want to know more about it. To those citizens—to you, the reader—this book is dedicated.

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